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W.P. KINNEY

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ASPECTS OF MALAYAN ECONOMIC DEVELOPMENT, 1900-1940

A THESIS

PRESENTED TO

THE UNIVERSITY OF LONDON

(SOAS) IN FULFILLMENT

OF THE REQUIREMENTS FOR THE

DEGREE DOCTOR OF PHILOSOPHY IN ECONOMICS

By

William Paul Kinney

April, 1975

ABSTRACT

This study of Malaya posits the establishment of export industries as the starting point in initiating the growth process. The export commodities developed were those highly using of unskilled labour or of a particular natural resource. Tin and rubber were the main exports of Malaya in the period under consideration-- the late nineteenth century up to World War II. Also important in initiating development and, more importantly in shaping the contours of growth once initiated, were government policy in regard to infrastructure (material and institutional infrastructure) and the technological nature of the production function. This analytical framework regards infrastructural policy and the technological nature of the production function as complementary rather than mutually exclusive causative factors.

By 1920, Malaya's export industries had reached relative maturity. Utilizing extensive industrial and occupational data of the 1921 census, Malaya's economic profile is sketched. The now capital--intensive tin industry was shared by Chinese and British producers. The labour-intensive rubber industry was shared by estates and smallholders. Coexisting with the export industries was a subsistence sector and some secondary and tertiary industry. Malaya represented a typical case of dualism as defined in this study and in the literature. Subsequent census reports reveal the continuing rigidity of "segregative" dualism.

Several other important conclusions emerge. The considerable potential of smallholder rubber was realized only to a limited extent. Governmental retrenchment and the exigencies of the Depression forced the peasants into an "involutional" adaptation. Infrastructural policy contributed importantly to these outcomes.

An assessment of welfare changes is made for the 1930's. Although the limits of statistical expression are considerable, it may be concluded that per capita rice availability was well-maintained during the Depression. The experience of Malaya's communities varied with regard to other aspects of welfare. Indices, constructed from raw data, support these contentions.

ACKNOWLEDGMENT

I would like to express my appreciation to Mr. P.C.I. Ayre and Dr. J.A.M. Caldwell who supervised the writing of this thesis.

I would also like to express my appreciation to Jacqueline Kinney, Alan Thompson, Robert Maddox, Caroline Maddox and Dorothy Gundy who helped in various ways during the preparation of this thesis.

The National Science Foundation, Washington, D.C. and Foothill College, Los Altos Hills, California provided financial assistance during the period of study and their generous help is hereby acknowledged. The assistance of other institutions is also acknowledged: The Hoover Institute Library of Stanford University, Yale University Libraries, The Foreign and Commonwealth Office Library (particularly Catherine Bazell) in London, Hubert H. Semans Library of Foothill College (particularly Jorge Bruguera).

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Chapter 1

Analytical Framework

The starting point for this study is the establishment of an analytical framework within which both the factors initiating export growth in an underdeveloped economy, Malaya and the factors determining the contours of that growth once initiated may be examined.[1]

The establishment of export industries is suggested as a starting point in initiating the growth process. Such an international trade approach has a long and respectable history going back at least to Adam Smith's Wealth of Nations. Two of Smith's important and related ideas, that international trade overcomes the narrowness of the home market and that it provides an outlet for the surplus product above domestic requirements, have been developed into the "vent for surplus" theory of international trade.[2] Myint notes the "considerable amount of prejudice among economists against the vent for surplus theory" which he says derives from its mercantilist associations and technical crudeness.[3] Yet in spite of its weaknesses, the vent for surplus seems a

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[1]The term Malaya is here used intentionally as the study covers the early part of this century before the establishment of the Federation of Malaysia. The study covers the inception and growth of the tin industry around the turn of the century and the development of the rubber industry after the 1905 introduction of the Hevea brasiliensis. The subsequent growth of the economy of the Malay Peninsula will be traced through, approximately 1940.

[2]The vent for surplus theory is discussed, among other places, in H. Myint's 'The Classical Theory of International Trade and the Underdeveloped Countries (Oxford: Institute of Commonwealth Studies, 1958), Series No. 22. Myint took the term from Professor J.H. Williams who in his Theory of International Trade Reconsidered quoted it from a passage in J.S. Mills' Principles.

[3]Myint, Ibid., p. 322.

more helpful starting point in the present study than the conventional international trade theory. The conventional theory holds that a country entering into international trade can produce the exports only by drawing labour away from domestic production.[4] Such an assumption would be inappropriate, as the later discussion of labour will make clear, in Malaya's case.

Of more interest in this study are several of Myint's observations regarding underdeveloped countries and the vent for surplus notion. It's maintained that the growth of international trade itself introduced or significantly extended the money economy in underdeveloped countries and that the process of specialization that emerged in these countries involved "adapting and reshaping the productive structure of a country to meet the export demand."[5] The underdeveloped countries of Southeast Asia, Latin America and Africa which developed export economies started off with sparse populations relative to their natural resources. "Once the opening-up process had got into its stride, the export production of these countries expanded very rapidly, along a typical growth curve, rising very sharply to begin with and tapering off afterwards.[6]

The explanation for these rapid rates of expansion, can not be found in the comparative costs theory with its assumption of given resources and given techniques-- "the text book account of the impact

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[4] Ibid., p. 323. Myint calls this the conventional international trade theory in its Ohlin version.

[5] Ibid., pp. 323 and 319 respectively.

[6] Ibid., p. 324.

of international trade."[7] Nor does the explanation lie in revolutionary changes in techniques or increases in productivity.[8] Rather the contributions of Western enterprise to the expansion process are mainly to be found in two spheres: the improvements of transport and communications and the discoveries of new mineral resources. (The former was described by Professor L.C.A. Knowles as the "unlocking of the tropics.") These observations provide us with a starting point for the analysis of growth of one such export economy, Malaya.

The analytical framework to be used in this study posits that as a general rule the types of commodities developed as export lines in underdeveloped countries are those highly using of unskilled labour or of a particular natural resource. Tobacco, tea, sugar, and rubber are good examples of the former; their production involves the use of a high labour coefficient over a wide range of relative factor prices. Furthermore, such commodities fit well the climatic conditions of many less developed countries. Mineral products-- copper, bauxite, tin, etc.-- provide examples of export industries whose profitable development depended on the availability of a natural resource rather than the availability of inexpensive unskilled labour. An additional factor important in initiating development, and shaping development at the time export industries were established was infrastructure. Generally, the term infrastructure is

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[7] H. Myint, The Gains from International Trade and the Backward Countries (Oxford: Institute of Colonial Studies), Series No. 12, p. 133. Also see, Ibid.

[8] Myint, 'The Classical Theory' of International Trade and the Underdeveloped Countries, loc. cit.

used to mean "material infrastructure." Such a definition would subsume means of transport, energy supply, irrigation, sewage systems--those items of "social overhead capital" that "render services as intermediate goods for production, consumption and the productivity of investment." [9] Such goods and the services are usually provided by the state.

The concept of infrastructure as used here, however, is extended to include "institutional infrastructure." This notion subsumes all common and statute rules, all ways of behavior and organizational institutions in an economy. Thus, broadly, institutional infrastructure may be said to constitute the framework within which economic entities set up and realize their plans. Such diverse items as administrative and political structures, credit and finance systems and cooperative organizations may be said to be part of the framework. [10] With infrastructure defined to include both material and institutional infrastructure, it may be posited that infrastructure is important in both the establishment of export industries which initiates growth and in subsequent economic growth.

Reference to the establishment and early growth of tin-mining in Malaya will help to elucidate the importance of infrastructure in the establishment of an export industry. Tin mining was begun in Larut after the discovery of such deposits in the 1840's and under the encouragement of Long Jaafar. He "encouraged the immigration of Chinese miners into Larut, financed by Chinese capitalists in Penang." [11] One of the main

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[9]Reimut Jochimsen, "Socio-Economic Dualism and Development Strategy," Asian and African Studies, Vol. 6, 1970, p. 97.

[10]Ibid., p. 106.

[11]J.M. Gullick, "Captain Speedy of Larut," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. 26, part 3, p. 19. This article on the eccentric Captain Speedy, resident of Perak, also describes the "difficult art of administering the Malayan Chinese" who were feuding over control of the tin fields. Additional details on the 1848 discovery of tin by Long Jaafar will be provided in Chapter II.

problems to be solved in developing the tin mines was transport. Thus one of the earliest creations of material infrastructure involved the building of a road connecting the Larut mining area in Perak to the port of Telok Kertang--making possible the use of bullock carts for the transport of tin. The same general pattern was repeated in Kinta with elephants used to transport tin from the interior to the Kinta River down which it was carried to the port of Durian Sabatang for shipping to Penang.[12]

The considerable value of the material infrastructure thus created in Larut and Kinta was however enhanced by complementary use with institutional infrastructure. The ports of Penang, Malacca and Singapore may be suggested as important components of the institutional infrastructure of Malaya in that they originally enjoyed duty-free status. (At the same time, the ports also clearly represent material infrastructure.) These ports would become very important in the initiation of trade-induced growth in Malaya. The establishment of Penang culminated what Wong Lin Ken calls "a two decade search for a convenient port along the trade route to China."[13] And Singapore, lying directly on the shortest sea route between Europe and the Far East, was destined to become an even greater port. By the time of the 1819 founding of Singapore, thirty three years after the founding of Penang, "British trade in the Malay Archipelago had become both valuable and extensive." [14] In subsequent years the initial attractions of the

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[12]P.P. Courtenay, A Geography of Trade and Development in Malaya (London: G. Bell and Sons, Ltd., 1972), p. 82.

[13]Wong Lin Ken, "The Trade of Singapore, 1819-69," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. 33, part 4,p. 16.

[14]Ibid., p. 11.

ports were enhanced by the provision of "properly conducted auctions and markets, of banking and insurance facilities and of shipping." [15] The ports, and especially Singapore, became collecting and redistributing centers for the produce of the Straits and the archipelago. Still further fillip was provided by the 1869 opening of the Suez Canal. As reported at the time, it was " the beginning of a new era in the lives of the great commercial and maritime nations." The "opening of the Suez Canal will quicken trade and . . . increase the importance of Singapore as a commercial center and a port of call." [16] The products of mines, fields and jungle exchanged for British piece goods of wool, cotton and silk as well as steel goods, gunpowder, iron and chinaware. In performance of these functions, the duty-free ports' population grew and the tonnage of ships entering the ports increased. [17] Also, the proportion of trade with various regions and countries changed. These magnitudes provide glimpses of the emerging development pattern.

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[15] Courtenay, op. cit., p. 71.

[16] George Bogaars, "The Effect of the Opening of the Suez Canal on the Trade and Development of Singapore," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. 28, part 1, p. 101 quoting The Straits Times, Overland edition, Jan. 4, 1870.

[17] Tonnage is used as a measure of increasing trade because the different units in which commodities were recorded--cotton goods in pieces, yarn by lengths, tin by weight, etc.--make it extremely difficult to assess volume of trade. Extensive details on shipping and trade are provided in Bogaars, op. cit., pp. 139-143 and Wong Lin Ken, op. cit., pp. 205-301.

For example, Singapore's large volume of trade with "other British colonies" and Siam reflects Singapore's importance as an entrepot for the import of rice from Burma, Cochin China and Siam respectively. [18] This rice was destined for consumption by labourers opening up export industries.

It is significant in this study that the free ports were established under foreign control and on the periphery of the "indigenous economy." As their main functions were to put primary products in touch with world markets and import goods from "outside," the ports only "indirectly" touched the indigenous population. The indirect way in which this element of the material and institutional infrastructure touched the indigenous population had important implications in the shaping of the contours of development and growth once initiated. This leads us to the second part of the analytical framework.

Growth having been initiated, it is posited in this study that two factors are of crucial importance in shaping the contours of further growth with several factors being of somewhat less importance. The two factors considered most important are infrastructure and the technological nature of the production function--the latter determining in

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[18] Courtenay, op. cit., p. 227.

considerable part the extent to which new techniques and skills are actually diffused in the underdeveloped area once growth has begun. Infrastructure, it has already been noted, was an important factor in initiating growth. Its importance continues in promoting growth, rigidifying the pattern initially established or, if you will, establishing the transportation and communication framework within which change and growth occurs and in the extreme case, "freezing" the pattern in the establishment of which it initially played a role. In many cases e.g., Indonesia and Malaya the pattern that was frozen was a dualistic one.

The growth of infrastructure following the establishment of an export industry in Malaya was very rapid. Between 1880 and 1931, the entire Peninsula was covered with a rail network. Rivers were dredged and the free ports were improved. The creation of infrastructure was largely an induced development as will later be explained.

The important point that infrastructural policy may lead to an intensification of dualism is not without irony differing as it does from the conventional view of infrastructure as a "good" thing in a developing country. To better appreciate how infrastructural policy can promote dualism, it is important that we set out explicitly what is meant by dualism. The literature on this concept is, of course, very extensive and one is thus forced to choose the most salient points for the present study.

Boeke provides a starting point by defining dualism as "the clashing of an imported social system with an indigenous social system" and attempts further clarification by adding that "the only true and really cogent antithesis is represented by the words capitalistic and

non- or pre-capitalistic."[19] Either the term "eastern economies" or "dualistic economies" may be used to describe "the situation that is typical for the countries in South and East Asia." [20] Another prominent feature of the dualism that is common in Southeast Asia and elsewhere is the prolonged coexistence and cohabitation of modern industry and of preindustrial, sometimes neolithic, techniques."[21] Geertz, among others, sees infrastructure as an important element in explaining the growth of a modern sector in dualism.

> "Benefiting from the external economies created by the formation of social capital, the forced diffusion of plantation crops and attendent labor skills over the island, and a certain amount of more direct governmental assistance, private enterprises steadily multiplied; soon their returns were great enough that they could provide most of the investment required for the qualitative changes in capital stock, particularly in sugar milling, which was becoming necessary. . . . the protracted 'fall' of the Culture System (which lasted from 1850 to about 1915) and its gradual replacement by the Corporate Plantation System were largely self-generated, because its success in establishing a serviceable export economy infrastructure made private entrepreneurship . . . progressively more feasible" in Indonesia.[22]

The rapid creation of an export sector linked to world markets meant that many developing countries passed from the "mule to the airplane in one generation" and they remained "for a long time in a situation where both airplane and mule fulfilled essential economic functions." [23]

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[19] Dr. J.H. Boeke, Economics and Economic Policy of Dual Societies as Exemplified by Indonesia (New York: Institute of Pacific Relations, 1953), p. 4.

[20] Ibid., p. 12.

[21] Albert O. Hirschman, The Strategy of Economic Development (New Haven: Yale University Press, 1959), p. 125.

[22] Clifford Geertz, Agricultural Involution (Berkeley: University of California Press, 1968), p. 65.

[23] Hirschman, op. cit., pp. 125-126.

Furthermore, the dualistic character of such societies went far beyond methods of production and distribution:

> "We find a few industries highly capitalised, such as mining or electric power, side by side with the most primitive techniques; a few high class shops, surrounded by masses of old style traders; a few highly capitalised plantations, surrounded by a sea of peasants. But we find the same contrasts also outside economic life. There are one or two modern towns, with the finest architecture, water supplies, communications and the like, into which people drift from other towns and villages which might almost belong to another planet. There is the same contrast even between people; between the few highly westernised, trousered, natives, educated in western universities, speaking western languages, and glorying in Beethoven, Mill, Marx or Einstein, and the great mass of their countrymen who live in quite other worlds."[24]

Benjamin Higgins is helpful in further elaborating on the differences in the technologically advanced and technologically retarded sectors in dualistic economies. "Typically in the advanced or 'modern' sector is found the petroleum industry (where it exists), other mining, large-scale manufacturing, large-scale, mechanized plantation agriculture and transport, finance, insurance, trading and other services associated with these activities. In the retarded or 'traditional' sector is found peasant agriculture, handicrafts or cottage industry and very small-scale industry and once again the services related to these undertakings."[25] Higgins notes that the typical operation in the modern sector, including plantations, is capital intensive-- though the rubber industry of Malaya is an important exception to this description. To facilitate raising capital, the form of organization is frequently the

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[24] Ibid., citing W.A. Lewis, Economic Development with Unlimited Supplies of Labour, p. 147.

[25] Benjamin Higgins, Economic Development: Problems, Principles and Policies (New York: W.W. Norton and Co., Inc., 1968), pp. 18-19.

corporation. Often shares are sold on all the world's leading capital markets. With the use of advanced technology in the modern sector, productivity is high. In contrast, the traditional sector employs techniques that are themselves traditional and correspondingly the productivity is low.[26] Again there may be important exceptions to this generalization.[27]

It is also posited in this analytical framework that as a dualistic economy experiences continuing growth certain characteristics, differentials and gaps become even more pronounced. Important is the continual coexistence of different sets of production conditions "of which one can in some meaningful sense be described as 'superior' and the other as 'inferior'."[28] "The coexistence is chronic and not merely transitional---- the degrees of superiority or inferiority show no sign of rapidly diminishing-- they may be constant or even increasing--- the interrelations between the 'superior' and 'inferior' elements, or the lack of interrelations between them, are such that the existence of the superior element does not do much to pull up the inferior element (i.e., a weak 'spread'), or may even positively serve to pull it down ('backwash')."[29] Often present are two distinct wage levels reflecting different marginal productivities of labour in the modern and traditional

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[26] Ibid., p. 19.

[27] Later it will be seen that peasant or smallholders' rubber production-- owing to the techniques and economics of rubber production-- enjoyed yields at least as high as the modern estate sector in Malaya.

[28] This is suggested by H.W. Singer in "Dualism Revisited: A New Approach to the Problems of the Dual Society in Developing Countries", Journal of Development Studies, Vol. 7, No. 1, October 1970, p. 60. Several of the ideas which follow were derived from that paper.

[29] Ibid., pp. 60-61.

sector.[30] Also present is at least the belief in a backward sloping supply curve of labour. Government may actively assume a role in labour markets by supporting the importation of labour to work in the export sector.

As a result of the weak 'spread' mentioned by Singer or as a reaction to economic depression, peasant adaptation may take an involutional form. Whether such an involutional adaptation occurs depends importantly on systemic characteristics.[31]

It should be stressed that economic growth (measured by, say, changes in GDP or per capita income) is thus an important characteristic of dualism as defined thus far. But such growth is not balanced. "Under conditions of technological dualism it is possible to have very substantial investment in the modern sector and quite satisfactory increases in per capita income in that sector without making any dent in the problem of poverty in the traditional sector and region."[32]

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[30] Hirschman, op. cit., pp. 126-127.

[31] Geertz, op. cit., describes agricultural involution. As explained by Geertz and as used in this study it involves a complex of systemic characteristics which lead to a sociologically critical feature of wet-rice agriculture-- "its marked tendency (and ability) to respond to a rising population through intensification; that is through absorbing increased numbers of cultivators on a unit of cultivated land," p. 32. The involutional adaptation that was possible in wet-rice agriculture would be precluded to swidden farmers. In contrast to the symbiotic relationship of sugar and sawah rice, swidden tobacco and swidden rice exist in a neutral or perhaps mildly antagonistic relationship, see Chapter 5 in Geertz. Institutional infrastructure may also be important in shaping the adaptation. For example, regulations, laws or tradition might prevent displaced peasants' entry into certain sectors of the economy.

[32] Higgins, op. cit., p. 21.

The special characteristics of growth in a dualistic economy may be set forth explicitly:

1. It is highly confined in a geographical sense.
2. It is largely confined to the export industries.
3. It "touches" a relatively small part of the population due to the relative autonomy of the sectors.
4. The growth rate is marked by extreme fluctuations.

It should also be stressed that dualism is a relative concept. The severity of the dualistic condition can be gauged by the extent to which the following occur:

1. Agglomoration of commercialization caused by the rising output.
2. Exclusive or at least very strong orientation of certain areas and sectors towards world markets.
3. Concentration of population.

Although the economic growth of any country involves leading and lagging regions, "the agglomerative pull of the leading regions may become so strong that lagging regions become chronically poor, as is the case in the Mexican south or in the Siamese or Brazilian northeast. The problem seems to be especially acute when sectors and regions overlap as they do in many underdeveloped countries. Then regional dualism becomes a reflection of technological dualism."[33]

A measure of the extent to which the above enumerated conditions developed in the 1920-40 period in Malaya may be gained by a disaggregative approach which examines changes in the various sectors over that twenty year period.[34]

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[33] Ibid., p. 20.

[34] Towards the end of this chapter, more extensive comment will be made on the disaggregative approach to be used in the study.

Examination of changes in the 1920-40 period will also enable us to test Jochimsen's hypothesis, closely related to the earlier stated hypothesis regarding infrastructure and the growth of dualism, that "many of the phenomena of dualism rise from elements which must be attributed to national peculiarities of the institutional sector of infrastructure."[35] This occurs when groups possessing power are able to provide infrastructure in locations, forms and ways that benefit them. In such circumstances infrastructural policy will be exacerbating the conditions of dualism. The output from one sector, the export or commercial sector, grows while the subsistence sector suffers relative stagnation. Thus in Malaya's case the existence of a "superior" element did not do much to pull up the "inferior" element (i.e. there was a weak 'spread'). The "lagging" regions of Malaya remained relatively poor while infrastructural policy continued to favor growth of the export sector. The data do not appear to support the "backwash" notion which suggests that lagging regions became poor (as opposed to simply remaining poor) while the modern export sector grows. Indeed important governmental policies, those pertaining to land use for example, were designed and executed to assure the continuance of peasants in traditional pursuits such as growing rice.[36]

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[35] Jochimsen, op. cit., p. 106.

[36] This point is considerably expanded in Chapters VI, VII, IX and XI. Rice growers who might have shared in the increasing prosperity by growing rubber were in general handicapped by governmental policies favoring rubber estates. This point is amplified in Chapter VII. Thus those in the traditional sector did not become poorer so much as they missed the opportunity to enjoy higher incomes (or enjoyed such opportunity to a limited degree).

Being a relative concept, dualism may of course also be found in developed countries e.g., Italy and the United States. However, it is posited as part of this study that where dualism is far advanced in an underdeveloped country resulting in enclaves of industrialization as well as urbanization and commercialization of only a region of a country, the welfare significance is very different. "Welfare programs" in most developed countries provided at least a minimal floor of security in the 1920-40 period. (Their inadequacy would quickly be conceded.) This contrasts to the precarious position of a labourer with no such protection who works in an export industry subject to the vagaries of world markets over which the labourer has no control. A further contrast is suggested by the worker who has been relegated to a stagnant subsistence sector in the dualistic economy. Again, disaggregation, whether by industry, region or racial group will make possible some evaluation of the differential welfare impact of economic changes. The measures of welfare used will be dictated by the data available.[37]

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[37] See the interesting work by Lim Chong-Yah, Economic Development of Modern Malaya (Kuala Lumpur: Oxford University Press, 1967), p. 26, in which he describes "non-gross domestic product indicators of growth in economic welfare in Malaya."

The second important factor which this study posits as determining the broad contours of economic development, once growth is initiated, is the technological nature of the production function. This analytical approach to economic change (also referred to as the factor proportions approach) and the infrastructural approach are not to be regarded as mutually exclusive, but as complementary. They constitute an interlocking and reinforcing pattern of causative factors that shape the economy. By combining these factors and drawing freely from other theories where relevant a cumulative pattern of factors may be formed and a self-generating and self-intensifying process may be observed that will constitute a theoretically acceptable explanation of the development process. The expressions and the extent of this complementarity will be manifest in various parts of this study.

The technological nature of the production function determines to a considerable degree the extent to which new techniques and skills are actually diffused in the underdeveloped area. An export industry having been established, the dispersion of new techniques in the underdeveloped economy would be far from an automatic process. Mere knowledge of the existence of new production methods would not suffice for their spread. In a developing economy, there can reasonably be postulated a low income elasticity for the food items the people themselves produce and a low marginal utility for leisure. Thus considering the risk and

sacrifice involved in learning new labour skills and acquiring new capital goods, the prospect of larger amounts of food production and more leisure time would probably not induce the rural producers to adopt new techniques.

On the other hand, the higher elasticity for the money economy's manufactured goods might render the rural producers more willing to incur these costs if they could sell their additional agricultural output in the monetary sector. Indeed, cash crops might be introduced. Such a development however would be contingent on numerous conditions. First, the concurrent production of a cash crop with a subsistence crop depends importantly on the production function. Rubber may be cited as an example of a Malayan cash crop that could exist in a "mutualistic" relationship with rice.[38] Rubber can be grown on slopes and therefore it makes no demand on scarce resources of flat or well-watered land required for rice. Further, rubber utilizes surplus farm labour-- especially at slack periods in the rice-producing cycle. A further necessary condition for the growth of mutualistic production of cash and subsistence crops is that cultural and sociological factors predisposing producers to continue in "old ways" and thus inhibiting the spread of new techniques not be so strong as to override economic criteria. Third, it may be necessary that infrastructural policy encourage-- or at least permit-- such a mutualistic relationship to develop.

The introduction of new techniques, where it occurs, makes possible the acquisition by the local population of new labour skills.

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[38] Geertz, op. cit., p. 54, speaking of Indonesia, says that "the imposed crops of the Culture System sorted themselves out into two broad categories: annuals (sugar, indigo, tobacco) which could be grown on sawahs in rotation with rice and perennials (coffee, tea, pepper and less important cinchona and cinnamon) which could not." Thus these two cultivations developed sharply contasting modes of interaction with the established biotic communities.

The acquisition of new labour skills by the local people is, in the analytical framework being suggested here, a means by which new techniques may be introduced into sectors outside the export industries. The extent to which the expansion of export industries in less developed countries created larger internal money markets and trained workers determined the extent to which new techniques spread throughout the economy. Infrastructure, and in particular institutional infrastructure, assumes importance in promoting or inhibiting this desired development as do political, cultural and social factors.

"The particular characteristics of the export industry used to describe its repercussions on other parts of the economy are the size and qualitative nature of the industry's labour, capital and material input coefficients . . ." [39] In this discussion of repercussions, the assumption is made that coefficients are generally not fixed. Inputs are less than perfect substitutes for each other in the production of any commodity. The elasticity of substitution among inputs will vary considerably from commodity to commodity.

In mineral production the labour coefficient is generally relatively low. This was not the case in Malayan tin production in the late 19th Century. In that period Chinese immigrants mined tin in a labour-intensive method by adapting crude implements formerly used for farming. After the introduction of the dredge in 1912 however-- and to

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[39] Robert E. Baldwin, Economic Development and Export Growth (Berkeley: University of California Press, 1966), p. 65.

some extent before 1912-- tin mining became much more capital intensive.[40] Furthermore, the skill component of those who worked on dredges was high in comparison with earlier labour-intensive tin mining. In these circumstances the availability of cheap unskilled labour would not likely result in the substitution of labour for capital. As a result of the nature of this labour demand by the export industry (tin), the money outlay for food and consumer goods in general was not large. The number of workers in the industry was not sufficient to make a substantial contribution to the money market for consumer items. Thus a weak demand repercussion from the tin export sector would prevent any large expansion in the industries producing simple consumer commodities. It should be emphasized that simple consumer goods would be the very items in which an underdeveloped country could most realistically hope to compete.

In contrast to capital intensive export industries, like tin and other minerals, there are export industries where the number of workers employed per dollar of export output is high. Tea, tobacco, coffee, and, important in the case of Malaya, rubber are such industries. In these industries, the demand effects from export expansion are more favorable. The larger number of workers employed would, ceteris paribus, create a larger market demand than would export activity devoted to mineral production.

In addition to influencing the demand for consumption goods, the nature and size of the labour input in export industries are

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[40] This is documented in the Report on Mines Department (Kuala Lumpur: Government Printing Office) from approximately 1911 through the 1930's. Chapter II will provide figures on the changes in the horsepower of the plant in mining.

important in determining the extent and type of the qualitative changes that occur in the labour force. Mineral industries are more favorable on this score than plantation crops--as in mineral industries there is generally a fairly large number of positions that are semi-skilled or skilled. This opens up the possibility of training indigenous workers to fill these jobs. Growth in the number of skilled labourers could lead to both further export expansion (in already established export industries or in new export industries) and the development of industries producing for domestic consumption and requiring skilled labour.[41] Analysis of the growth of various industries in the period from 1920-40, after the export industries are well-established, will reveal to what extent increase in the number of skilled labourers has led to the growth of other industries. Again, the implicit interaction with institutional infrastructure is obvious. For example, the growth of discriminatory labour practices could retard or make more difficult (or in the extreme case, prevent) these developments. On the other hand, infrastructural policy may be designed and executed to help realize the desired economic objectives.

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[41] This theoretical consideration is introduced as of possible relevance in some developing economies--though, as detailed in Chapters IX and XI, it was of limited germaneness in the case of Malaya. This is partially explained by the fact that Malaya's immigrant workers were similar to Baldwin's "target workers" in Rhodesia. See Baldwin, op. cit., pp. 114-121. Many immigrant workers maintained close ties to their villages in India and China, remitted funds to family members still there and, importantly, planned to return to their village after earning a certain amount of money. Nor did the hypothesized repercussion occur to a great extent in the case of Malay workers. Governmental policies were important in bringing about this result. Further comment is forthcoming in this chapter and Chapter XI.

Still other important development benefits are to be derived from the growth of labour skills and knowledge in export industries. Some workers, with newly acquired skills and knowledge, may break away from the export industry and establish small firms to supply the export industry or the general consumption market. Such developments would, of course, be reflected in changes in the industrial censuses between 1920 and 1940.

In labour-intensive agricultural industries producing for export, there is also the possibility of indigenous workers acquiring enough skill and knowledge to establish their own small-scale unit in the agricultural export industry--if the production function is such as to allow small producers to compete with large producers. Clearly, the type of agricultural export industry that has been established is of importance as is infrastructural policy which may aid or obstruct the growth of small agricultural exporters. Irrigation, for example, might be an important part of such policy. An alternative development is that the bulk of the indigenous population remain poor, unskilled agricultural producers employing backward and unchanging methods of cultivation and primarily producing subsistence goods. Such an intensification of dualism could result from cultural and sociological factors taking precedence over economic factors. Institutional infrastructure, in particular in the numerous cases where government becomes intimately involved in agriculture, may contribute to this outcome.

The promotion of specific governmental measures e.g. irrigation or attempts to relieve rural indebtedness are generally thought of as efficacious ways to modernize agriculture, encourage higher yields and generally break down dualism. But such policies will not be pursued with sufficient vigour if government policies view subsistence agriculture and the "traditional" way of life as the "proper" lot of the peasantry.[42] Thus within the framework set by the institutional infrastructure or governmental policy, the development of small-scale agricultural exporters may be precluded. Dualism is thus perpetuated and an involutional adaptation such as that observed by Geertz in Indonesia may be necessitated. An outcome that perpetuates dualism is to be regarded as less desirable than one that would break down dualism.

Another item of importance in this analytical framework is capital inputs. As Baldwin observes, "The composition and size of the capital coefficient in the export industry played a major role in shaping the pattern of growth within the underdeveloped areas."[43] For commodities like minerals, the most profitable factor combination tended to require large amounts of complex equipment. The production of this equipment necessitated the use of

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[42] Ding Eing Tan Soo Hai, The Rice Industry in Malaya 1920-1940 (Singapore: Malaya Publishing House, Ltd., 1963), p. 15, citing A.S. Haynes, "Extension of Rice Cultivation in the F.M.S.: Need for a Definite Policy," Proceedings, F.M.S., 1933, p. C293. The British view of their trusteeship, as expressed by Haynes, included "building up a sturdy and thrifty peasantry . . . living by the food they grow" and not foresaking "the life of their fathers for the glamour of new ways."

[43] Baldwin, op. cit., p. 68.

other types of complex capital inputs and fairly large amounts of skilled labour. The more economically advanced countries were at a cost advantage in producing such specialized capital equipment which was then imported into the underdeveloped countries. On the other hand, if the capital required by the export industry contained a large element of construction outlays, the chances of creating additional local industries would be enhanced.

The nature of the export industry's material inputs also affected the development prospects of other industries--in much the same way as the export sector's demand for capital goods. The question to be investigated is whether local production was possible and profitable considering infrastructural policy, the natural resources available locally, the limited demand of the export industry and the significance of economies of scale.

Another important factor shaping the pattern of development is the significance of the output of the export industry as an input for other industries. In many cases, the initial export industries established did not include any of the processing activities associated with the product's movement to final consumers. The important question for investigation here is whether "forward linkages" are made within the underdeveloped country. Were processing

industries built up? [44] It has been suggested that the possibilities for profitable production in further processing were enhanced if the final consumer goods that resulted from the export product were important consumer items in the budgets of the workers employed in the export industry; when the final goods produced from the product were not significant consumption items within the developing country, then the chances of further forward production were poor. [45] Thus, if the demand for export products is induced by developments in other countries that fact will be reflected in the pattern of development. It is significant that, say, the copper of Chile or the tin of Malaya, will ultimately find its way to consumers in the United States or Europe. The relationship between developments in the West and those within the developing country thus assumes importance in this analytical framework.

Another factor to consider in analyzing the impact of export development is the nature of economies of scale in those industries that supply the export industry and in those that utilize the export product as an input. For some export industries, the demand for material and capital equipment inputs is small. If the demand for the inputs is too small for a production unit supplying

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[44] Hirschman, op. cit., Chapter 6. See for discussion of backward and forward linkages. He suggests a "rule of thumb that an industry can properly be established in an underdeveloped but developing country as soon as existing demand is equal to one-half of the economic size of the plant as defined above. The additional demand needed to justify the investment can be expected to come from the growth of existing demand and from the development of new demand through forward linkage, once the plant is in existence." p. 103.

[45] Baldwin, op. cit., p. 69.

the export industry to operate efficiently, the establishment of local firms to supply these inputs would not be profitable. The mineral industries, like tin in Malaya after 1912, rank unfavourably in this regard. The specialized capital equipment and material inputs that constituted a large proportion of such industries' inputs were often produced under conditions of considerable scale economies. Such inputs were imported into Malaya rather than manufactured there. The scale factor could also work against the development of additional processing activities if an efficient plant required larger inputs of the export product than the underdeveloped country could supply. In such a case, processing would be done outside the country. In contrast to capital-intensive industries, labour-intensive industries tend to utilize capital and material inputs that do not require large, complex productive units in order to achieve minimum unit costs.

"Export industries for which the goods and services content of inputs were favourable to domestic production induced greater secondary development, and indirectly increased the possibilities for still further growth." [46] A good example would be an export industry that induced the development of a railway system. The opening of a rail system increases the opportunity for further growth by making it more feasible to establish

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[46] Ibid., p. 70.

other export industries.[47] Such induced development of infrastructure also makes more feasible the establishment of industries to supply the export industry and of industries supplying commodities demanded by those employed in the export sector. If such industries are in fact established they will in turn stimulate further growth. The importance of the type of export industry initially established can be great. The growth of tin mining in late 19th Century Malaya, it has been noted, induced the creation of a superb rail system on the West Coast of the Peninsula. Consider, by way of contrast, the negligible impetus stemming from the establishment of a crude petroleum export industry in which the main transportation facility would be single-use pipelines.

Thus there is in the analytical framework posited here a clear distinction between the developmental impact of capital-intensive industries like minerals and labour-intensive industries like plantation agriculture. The characteristics of the production functions of the export sector and the role of infrastructure provide the basis for generalization in this study. General principles must be established if one is to be theorizing about development and not merely describing it.[48] At the same time, the framework suggested here enables the development process to be considered on a disaggregative industry level rather

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[47] Courtenay, op. cit., see p. 101 for an excellent example of this. The first major axis of rubber development in Selangor was the Klang Valley with its roads and rail service linking Kuala Lumpur and Port Swettenham. Construction of the transport system had been induced by the earlier growth of the tin industry. Later developments also followed transport lines-- spreading out from the area of old coffee estates whose location had also been determined by accessability to transport.

[48] Baldwin, op. cit., see p. 12 on this point.

than attempting to work with a few simple aggregative relationships. Subsequent chapters will examine the evolution of Malaya's economy while entertaining with Hirschman the belief that "intimate acquaintance with an individual country has in fact produced many of our most useful generalizations about the social process."[49]

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[49] Hirschman, op. cit., p. vii.

CHAPTER II

TIN: THE DEVELOPMENT OF AN EXPORT INDUSTRY

Having established the analytical framework and relevant considerations in which development may be viewed, we turn to Malaya's first great export industry, tin. In this discussion several important facts about tin should be kept in mind. First, tin was extremely important in providing the developmental impetus in the late 19th and early 20th Centuries in Malaya. Second, tin was not only responsible for most of the increase in national product in that period, but also the technological nature of that export industry's production function was an important determinant of the structural components of the rise in output. Third, tin mining was an industry almost completely developed by foreigners. In the very early growth of the industry the metal was mined by Chinese who adapted primitive farm implements to the mining of tin. This was possible only because tin occurred in alluvial deposits not far below the surface. However, the progressive exhaustion of such easily won deposits eventually necessitated the application of more and more capital equipment. This capital, like labour before it, was also provided by foreigners--the British.

The change from labour-intensity to capital-intensity had, as our earlier comments would imply, important developmental and employment repercussions. An appendix to Chapter III will contrast the initial employment repercussions in the increasingly capital-intensive tin industry and the labour-intensive rubber industry. The further employment repercussions as discussed in Chapter I will be examined in later chapters.

It is impossible to state with precision when tin mining was begun on the Malay Peninsula.[1] Among the earliest indications of tin mining in Malaya are references by Arab writers to a West Coast port that may have been Kedah which in the 9th Century A.D. was famous for tin and bamboo. At the time of the Portuguese conquest of Malacca, 1511, a Malay tin coinage was in existence-- confirming that tin mining had been carried on for some years, or perhaps centuries. Following the 1641 Dutch capture of Malacca (from the Portuguese), the Dutch established trading stations to control the tin trade both on the Perak River and at Kuala Selangor. Dutch records show that in 1649, the export of tin from Malacca alone was 770,000 lbs. (which equals 5,775 pikuls or 344 tons).

Formal British hegemony on the Peninsula began with the 1786 ceding of Penang to Britain. By 1804 the export of tin from Perak state was estimated at 9,000 pikuls annually. Fermor notes that in the early 19th Century, the bulk of the tin "must have been raised by the Malays" as there were estimated to be only 400 Chinese tin miners in Perak state in 1818.[2] This, however, would soon change. Up to about the mid-19th Century the export of tin from Perak appears to have been quite constant-- ranging from 6,000 to 9,000 pikuls.

Until 1848, the existence of tin in the Larut district appears to have been unknown. "It was apparently a discovery in that year by a Malay named Che Long Jaffar, of tin-ore as a black sand in a stream in Larut that led to the further development of the tin industry in

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[1] This brief historical sketch draws heavily on Sir Lewis L. Fermor, Report Upon the Mining Industry of Malaya (Kuala Lumpur: F.M.S. Government Printing Office, 1939), pp. 21 and on. Also see the excellent work by Wong Lin Ken, The Malayan Tin Industry to 1914 (Tuscon: Univ. of Arizona Press, 1965).

[2] Ibid., p. 22.

Perak State, large numbers of Chinese flocking to Larut."[3] By 1870, 40,000 Chinese were engaged in tin mining in the district. The period around 1870 was characterized by constant quarreling over the ownership of the mines between the Chinese of two powerful secret societies, the Si Kuans, members of the Ghi Hin Triad Society and the Go Kuans, members of the Toa Pek Kong Society. This quarreling was one of the important factors leading to the British intervention in 1873 with the appointment of a British Resident in Perak. The quarreling was settled by drawing a line through the mining country and giving the Si Kuans possession of the mines north of the line and the Go Kuans possession to mines south of the line. By the end of 1874, population, which had declined in 1872-73, was again increasing. At the end of 1874, the population was 33,000 of which 26,000 were Chinese.

The developmental impact of tin was obvious early on. "The history of the mines . . . is practically the history of the State, for it is very difficult to disentangle the one from the other. Without its tin, Perak would undoubtedly now be an unknown jungle. It was its mineral wealth which first brought it into notice, and which has in these later years produced the funds for its rapid development."[4] In 1877, the first steam engine and centrifugal pump were introduced into Perak and installed near Taiping. These more sophisticated capital goods-- sophisticated in comparison to the simple implements used by Chinese miners-- gave a further fillip to the development of tin mining.[5]

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[3] Ibid. Also see Gullick, op. cit., for an excellent and lengthy description of events in this period.

[4] Ibid., p. 23.

[5] Wong, Malayan Tin Industry, op. cit., pp. 56-57 describes how these innovations came to be accepted by the Chinese. He notes that "by 1881 there were 20 steam pumps in Larut" alone.

After 1880 another district in Perak became an important tin mining area. The Kinta district's tin deposits proved to be even richer and more extensive than those in Larut. The exploration of this newly developing district was very rapid with the population of Chinese miners in Kinta rising from 1,000 in 1880 to about 45,000 in 1889. During the last two decades of the 19th Century, tin mining grew in other states too-- though to a lesser extent than in Perak.[6] The early growth of tin mining in Larut, Kinta and Malaya in general is summarized in the tables on pp. 32 and 33..

It may be of interest to inquire at this point as to the important factors that induced the rapid development of Malaya's tin industry. Certainly important among these factors were the more settled political conditions which followed the 1874 British intervention in the Malay States-- "a factor too often stressed by British administrators and historians," says Yip.[7] It is also important to note that technological innovations in the more developed areas of the world, in particular the United Kingdom and the United States, were very important in inducing the growth of Malayan tin. Before these developments in the West, it has been postulated, economic growth in Malaya was negligible with subsistence agriculture dominating economic activities. Thus fundamental change was brought about in Malaya's economy in the last half of the 19th Century in two ways. A strong impetus for economic growth was provided by economic and technological developments in the West. Second, the growth of the Malayan economy and its structural changes reflected the Malayan economy's close ties to the West.

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[6] See Wong, Malayan Tin Industry, op. cit., for a description of mining in other states.

[7] Yip Yat Hoong, The Development of the Tin Mining Industry of Malaya (Kuala Lumpur: University of Malaya Press, 1969), p. 62.

Table I-1[8]

Export of Tin from Perak, 1874-93 (in pikuls)[a]

Year	Larut (Pikuls)	Kinta[b] (Pikuls)	Other Districts[c] (Pikuls)	Total (Pikuls)	Total (Tons)[d]
1874	11,000	---	---	11,000	650
1875	30,000	---	---	30,000	1,790
1876	31,000	---	7,000	38,000	2,260
1877	40,000	---	9,000	49,000	2,920
1878	46,000	---	12,000	58,000	3,450
1879	55,000	---	14,000	69,000	4,110
1880	70,000	15,000	3,000	88,000	5,240
1881	79,000	17,000	4,000	100,000	5,950
1882	95,000	19,000	7,000	121,000	7,200
1883	125,000	25,000	9,000	159,000	9,460
1884	127,000	34,000	11,000	172,000	10,240
1885	104,000	47,000	11,000	162,000	9,640
1886	94,000	63,000	27,000	184,000	10,950
1887	103,000	86,000	27,000	216,000	12,860
1888	102,000	100,000	16,000	218,000	12,980
1889	104,000	119,000	13,000	236,000	14,050
1890	95,000	130,000	12,000	237,000	14,110
1891	86,000	145,000	11,000	242,000	14,400
1892	72,000	193,000	13,000	278,000	16,550
1893	70,000	231,000	15,000	315,000	18,810

Sources: Compiled from Wray, op. cit., and Annual Reports on the State of Perak, Taiping. Hereafter to be referred to as Annual Reports, Perak.

Note: [a]Figures of export are given in the nearest thousand pikuls. (16.8 pikuls = 1 long ton).

[b]The tin export from Kinta for the years 1876-9 was included under 'Other Districts'.

[c]Included under 'Other Districts' were Kuala Kangsar, Batang Pandang, Lower Perak, Selama, Kurau, Bruas and Sungei Tinggi.

[d]The equivalent figures in tons are given in the nearest ten.

[8] Ibid., p. 60.

Export of Tin from the Malay States of Perak, Selangor, Negri Sembilan and Pahang, 1890-9 (in pikuls)[a] [9]

Year	Perak (Pikuls)	Selangor (Pikuls)	Negri Sembilan (Pikuls)	Pahang (Pikuls)	Total (Pikuls)	Total (Tons)[b]
1890	237,000	175,000	36,000	6,000	454,000	27,020
1891	242,000	195,000	41,000	6,000	484,000	28,810
1892	278,000	208,000	70,000	7,000	563,000	33,510
1893	316,000	253,000	58,000	7,000	634,000	37,740
1894	396,000	339,000	43,000	8,000	786,000	46,790
1895	400,000	361,000	39,000	9,000	809,000	48,150
1896	383,000	347,000	50,000	11,000	791,000	47,080
1897	352,000	302,000	49,000	9,000	712,000	42,380
1898	331,000	277,000	46,000	11,000	665,000	39,560
1899	319,000	255,000	57,000	13,000	644,000	38,330

Source: Annual Reports, Perak, Selangor, Negri Sembilan and Pahang.

Note: [a]It is necessary to mention that the tin produced in each State was exported both in the form of tin-ore (i.e., unsmelted) and in the form of metallic tin (i.e., after smelting). The above figures are given in terms of metallic tin. For this table, tin-ore was calculated on the official basis of containing 65 percent of metallic tin for the years before 1898 and on the basis of containing 68 percent of metallic tin for the years after 1898.
Figures of export are given in the nearest thousand pikuls. (16.8 pikuls = 1 long ton.)

[b]The equivalent figures in tons are given in the nearest ton.

[9] Ibid., p. 61.

Thomas DeGregori in an interesting work[10] illustrates well the importance of technological innovation in enhancing the value of an underdeveloped country's assets. In the case of West Africa, trade in palm oil grew because of various innovations that allowed it to be used in the manufacture of candles. In South Africa, the fat from South African fat-tailed sheep could not for a long time be used for soap because of the unavailability of soda ash. "It was the development in Europe of the LeBlanc process that allowed the South African colonists to make soap from the local materials, thus creating the soap industry and an export product."[11]

So it was in the late 19th Century with regard to Malaya. Enhancement of Malaya's tin as an asset and the impetus for growth derived from developments in the West. The last part of the 19th Century saw the introduction of new sources of energy and new departures in technology which Thorstein Veblen called the "technology of physics and chemistry."

> "It was in the final thirty years of the nineteenth century that a 'whole century of slow progress and restatement in pure science-- particularly in thermodynamics, electromagnetism, chemistry and geology-- began to meet up with rapid development in practical engineering . . . Not only were new industries developed and new sources of power provided . . . innumerable existing industries . . . were transformed and expanded."[12]

The growing industrialization of Britain and the United States during the latter part of the 19th Century brought about a growing demand for

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[10] Thomas DeGregori, Technology and the Economic Development of the Tropical African Frontier (Cleveland and London: Case Western Reserve University Press, 1969.

[11] Ibid., p. 6.

[12] Harry Magdoff, Age of Imperialism (New York: Monthly Review Press, 1966), citing The New Cambridge Modern History, F.H. Hinsley (ed.), (Cambridge, England, 1962) Vol. XI, pp. 2-3.

tin for the tinplate industry" . . by the third quarter of the nineteenth century the tinplate industry had proved to be the most decisive factor in nurturing the growth of tin mining all over the world."[13] Before the 1870's, the main source of tin supply had been the mines of Cornwall. But by the late 19th Century, the Cornish deposits were rapidly being exhausted while at the same time the demand for tin grew pari passu with Europe and North America's introduction of the steam engine, the wider application of power to industrial machinery and the rapid development of railways. The price of tin which had stood at $20 per pikul in the 1850's rose above $30 per pikul by the 1880's and 1890's.[14]

The development of tin as an export industry in Malaya is consistent with the established analytical framework in that its development depended on the cheap supply of natural resources. But as the preceding discussion illustrates the size and nature of the export market were also of crucial importance. The latter factor induced investment in tin and the production of a product which was to be exported to the West rather than sold in the domestic market. The fact that there was not sufficient inexpensive labour, another item stressed in the analytical framework, could be surmounted by the importation of labourers on a massive scale. The arrangements fashioned for this purpose will be described in Chapter IV.

The preceding section has established that the initial growth impetus in Malaya came from the tin industry whose development in turn

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[13] Yip, op. cit., p. 63 citing C.D. Cowan (ed.), The Economic Development of South-East Asia (London, 1964), p. 128)

[14] Ibid., p. 62.

was induced by events in the West. This section investigates methods of mining and changes in the industry's factor combinations.

Our discussion can begin with reiteration of the fact that by the early 20th Century, the more easily won tin deposits of Malaya were being exhausted with the result that mining expenses were increasing. One of the responses to the changing conditions in tin mining was the increasing use of capital goods in mining. As early as the decade before the introduction of the dredge, there were numerous intimations of the accelerating trend to capital intensity. A 1907 report observes that:

> modern machinery and labour-saving appliances have been extensively adopted and, as a result, many propositions are paying good dividends which, under the old methods, could not have been dealt with at all. The hydraulic system of working is one of the most economical methods . . . The enormous pressure of the head of water is directed against the sides of the hill containing the pay dirt, which is then washed down in enormous quantities and then treated in the ordinary way . . . The Chinese have not been slow to follow the example set them by their Western neighbors, and now no mine is regarded as properly equipped unless rails, trucks and hauling engines are used to replace the coolie." [15]

An understanding of the technology of alluvial tin mining is prerequisite to understanding the transformation of tin mining from a labour-intensive to a capital-intensive industry. Thus, we turn to a description of labour-intensive mining of Malaya's alluvial deposits--detailing and quantifying the industry's transformation from labour-intensity to capital-intensity.

Alluvial tin deposits usually lie fifteen feet or more below the surface of the earth. The first step in mining is removal of the overburden of the earth. In Chinese mining, this task was usually

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[15] R.N. Jackson, Immigrant Labour and the Development of Malaya 1786-1920 (Kuala Lumpur: Government Printing Office, 1961), p. 141 citing R.O. Winstedt, Twentieth Century Impressions of British Malaya (London, 1908), p. 506.

contracted out at piece-rate to a gang of labourers. "This was the naik chiang system, a chiang being a Chinese measurment of earth: 30 X 30 X 1½ feet or 1,350 cubic feet. Naik chiang labourers were normally the least skilled of the mining labourers and they were paid by the chiang of earth removed."[16] All of the other processes in lombong mining, lampanning or ground-sluicing and underground mining-- these being the principal methods of alluvial tin mining-- were also highly labour-intensive. The crucial importance of a cheap, continuous input of labour is thus apparent. Yip opines that "the continuous supply of cheap Chinese immigrant labour was undoubtedly the most important factor in the early development of the Malayan tin mining industry."[17]

The removal of the overburden of the earth left an oblong pit-- the tin mine itself-- which excavation was usually from 15 to 25 feet in depth. The tin mines, also called Lombongan, were generally on the swampy flats at the base of hills of primitive formation.[18] The following description of a Miss Bird's visit to a tin mine in Taiping in the late 19th Century provides a graphic description of tin mining as then practiced.

> "We went first to a very large tin mine belonging to a rich and very pleasant-looking Chinaman, who received us and took us over it. The mine is like a large quarry, with a number of small excavations which fill with water and are pumped by most ingenious Chinese pumps worked by an endless chain, but there are two powerful steam pumps at work also. About 400 lean leathery-looking men were working, swarming out of the holes like ants in double columns, each man carrying a small bamboo tray holding about three pounds of stanniferous earth, which is deposited in a sluice, and a great rush of water washes away the sand, leaving the tin behind, looking

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[16] Yip, op. cit., p. 80.

[17] Ibid., p. 77.

[18] See Jackson, op. cit., pp. 30 and 33.

> very much like 'giant' blasting powder. The Chinese are as much wedded to these bamboo baskets as to their pigtails, but they involve great waste of labour. A common hoe is the other implement used. The coolies are paid by piece-work and are earning just now about one shilling and sixpence per day. Road making and other labour is performed by Klings, who get one shilling a day."[19]

The occurrence of tin in shallow deposits thus made exploitation of the metal easy for the Chinese in that it minimized the need to pump water out of the mine pit. There was usually no need to install expensive and heavy pumping machinery-- only the chin-chia. Furthermore, the existence of shallow deposits meant savings in production costs. "Given a deposit and the nature of the overburden, the average cost of mining generally increased with the depth of the mine out of which the Karang had to be raised and the water pumped."[20]

The main capital item, the chin-chia or chain pump was, as Yip notes, a direct borrowing from the rice fields of China.

> "It consisted of an endless wooden chain driven round two wooden wheels of unequal diameter, the upper one being larger than the lower . The chain consisted of small wooden slats, placed at regular intervals, and fitting into a trough made of hundred-foot planks so as to render each compartment fairly water-tight. The whole contraption was placed in a slanting position across the mine, so that one end of it rested on the edge of the pit and the other dipped into the pool of water to be drained out. The larger wheel at the upper end was in effect a water-wheel, and was driven by a stream of water drawn from any convenient source nearby. Fitted to the axle of this wheel were cogs, each of which drew up a joint of the endless chain. In succession, each compartment thus raised a quantity of water from the floor of the mine to ground level. The water was then discharged into a channel, which at the same time led off the stream providing the motive power for the wheel." [21]

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[19] Ibid., pp. 80-81, citing I.L. Bird, The Golden Cheronese and the Way Thither (London; 1883), p. 289.

[20] Yip, op. cit., p. 102.

[21] Ibid., p. 85, citing Ooi Jin-Bee, "Mining Landscapes of Kinta," Malayan Journal of Tropical Geography, Vol. IV, 1955, p. 17.

Through the use of the chin-chia the immigrant Chinese solved one of the major problems-- flooding of the mines-- that had prevented the Malays, who originated lombong mining, from developing it into an efficient mining method. The chin-chia, though a mainstay of early Chinese mining, did not completely solve the problem of flooding. The average disposal of water was only 1500-3500 gallons of water per hour (this varied with its size). In consequence, Chinese mining remained dependent to a considerable extent on the weather and the location of the mines in relation to the water table. To further minimize the need to pump water, the miners moved to the foothills. Fortunately for the miners, the foothills contained the richest tin deposits in the country. The geological explanation for this is that the disintegrated granite containing the tin ore, being washed down the slopes of mountains by rain and rivers, remained in pockets close to the slopes because of its greater weight than the accompanying sand.

The steam engine and centrifugal pump, which had been introduced to the Malay Peninsula in 1877, were capital items of prohibitive cost to the many small Chinese miners. A steam engine and centrifugal pump cost $4,340 when first introduced. The monthly working cost was $300 (mostly for fuel).[22] It was also a very bulky piece of equipment whose transport to the mining areas would have been exceedingly difficult before the 1895 completion of the railway in Kinta. It is not surprising that the Chinese miners long resisted the use of the more efficient European capital equipment and continued to use the chin-chia which cost $250 to build and only $16 a month to run.[23] Towards the end of

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[22] Ibid., pp. 85-86.

[23] Ibid.

the 19th Century, the European equipment, enjoying the advantage of increasing the depth to which miners could work, made more rapid progress in replacing the Chinese chin-chia. Still, even with the use of these capital items, lombong mining remained highly labour-intensive. Labour costs are estimated to have accounted for eighty percent of the cost of production in larger mines and a still higher percentage in smaller mines.[24]

The other methods of early Chinese mining, none of which achieved the importance of lombong mining, were also highly labour intensive. Underground mining was employed where the overburden was so thick that the karang was too deep and costly for lombong mining . This type of mining was done by sinking shafts into the ground and lining the sides with thin planking, buttressed with timber. This was a wasteful method of mining in that the exploitation of the karang was very incomplete.

Lampanning, a very simple mining method, existed on a small scale. It was completely labour-intensive-- the karang being hoed from the hillside and simply thrown into a small stream to liberate the tin ore from the waste material. No machinery was used. A single man might engage in lampanning, though sometimes as many as six men worked in one lampan mine. The suitability of this very simple form of mining was limited to areas where deposits were shallow. Furthermore, being a very inefficient method of recovery, lampanning's profitability depended on working karang with a high percentage of tin ore. Lampanning was a wasteful method of mining on two counts. First, a high proportion of ore was lost in the stream. Second, high tin ore ground worked by this method was never properly worked out.

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[24] Ibid., see p. 86 and figures from Ralph Stokes in Yip's footnote.

It is not possible to say with certainty whether the labour-intensive mining described so far was inefficient in economic terms. Considering the high cost of capital goods, continuation of labour-intensive tin mining may well have represented a rational economic choice. In a technological sense, however, it quite definitely appears that all of the major labour-intensive methods of tin mining were inefficient in that they incompletely exploited the country's tin deposit. Warnford-Lock estimated that as little as 50 percent of the ore content of the ground worked was recovered. Yip holds the view that this may be an underestimation of the amount recovered. Still the fact that the "worked out" ground was later reworked by more efficient, lower-cost capital-intensive indicates that the exploitation by the Chinese miners was incomplete indeed.[25]

Earlier on reference was made to the fact that the trend to capital intensity was already under way in the early 20th Century. As reported in that period,

> "The day when the Federated Malay States might be regarded as the happy hunting ground for the small miner seems to have passed, and the future of the tin mining industry in the States will depend upon the economical development on a large scale of low-grade propositions."[26]

With the easily won tin deposits largely exhausted, capital intensive methods would have to be employed. The number of labourers employed in tin mining reached a high figure of 229,778 in 1907. This was to be followed by a long term decline that would see the number of mining labourers drop by 62% in just fifteen years.[27] Thus even before the advent of the major labour-saving device, the dredge, the trend was apparent.

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[25] Ibid., p. 88.

[26] Jackson, op. cit., p. 141, citing R.O. Winstedt, Twentieth Century Impressions of British Malaya (London, 1908), p. 506.

[27] Ibid p. 144. In 1922, the number of labourers was 81,898.

In the period following the turn of the century, capital-intensive mining methods would make possible the mining of low-lying and swampy areas which could not be exploited by open-cast methods, the exploitation of low-grade deposits hitherto considered unprofitable to work as well as the re-working of deposits incompletely exploited by labour-intensive methods.

The types of deposits with which the chin-chia could adequately cope were surface deposits and shallow deposits. Surface deposits can be described as those with a negligible amount of overburden with the karang extending from the grass roots down to a depth of about fifteen feet. Shallow deposits had an overburden of 15 or 20 feet below which lay the karang. The introduction of the centrifugal steam pump-- the first significant capital item after the chin-chia-- was one response to the growing exhaustion of surface and shallow deposits. It made possible the exploitation of deeper deposits but, as earlier noted, was of prohibitive cost to many small miners. Meanwhile the actual technique of mining continued in the labour-intensive methods first developed by the Chinese in spite of growing use of the centrifugal steam pump. The turn of the century period was characterized by a continual decrease in the yield of tin ore per cubic yard of karang mined. Thus it was becoming increasingly imperative that lower cost methods of mining be found.

It should be recalled that Chinese open-cast mining involved three processes: breaking down the karang, raising the karang to the surface and washing the karang to separate the tin ore from the waste material. The transformation of tin mining from a labour-intensive to a capital-intensive industry essentially consisted of progressive mechanization of these three processes. In the earliest Chinese mining, as

already described, the karang was broken down with changkols (a type of hoe) and then carried to the surface in baskets balanced on a pole placed across the shoulder. As mining went deeper, trams were increasingly used to haul the karang to the surface. Also, the last decade of the 19th Century saw a growing trend to hydraulic mining or hydraulising in which the karang was "broken down by water issued from a moniter under natural pressure obtained by damming a stream 100 feet or more above the mine and conveying the water through pipes down to the mine below."[28] Following the breaking down of the karang, the karang was mixed with water and raised to the surface by hydraulic elevators working on the suction principle. As Yip explains it, "A jet of water is projected under natural pressure up the inside of a pipe creating a suction which draws the mixture of karang and water to the surface of the mine."[29] Hydraulic mining, which could only be practiced close to foothills, enjoyed the advantage of very low average cost per cubic yard worked thus making possible the treatment of very low grades of deposits.

The introduction of gravel-pump mining in 1906 accelerated the trend to capital-intensive tin mining. In this method of mining, a jet of water is also used to break down the karang after which a gravel-pump raises the karang to the surface. The important difference between hydraulicing and gravel-pumping is that in the latter method the power was artificially generated by steam, oil or electricity thus involving higher costs.

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[28] Yip, op. cit., p. 130.

[29] Ibid., p.

During this transitional period to capital intensity while the breaking down of the karang and the raising of the karang to the surface was becoming more capital-intensive, the washing of the karang continued to be done in the sluice boxes (known locally as the palong) as originally developed by the Chinese. In the years before 1912 statements of the following type became increasingly numerous.

> "A comparison of the returns of power plant employed in 1911 as compared with the previous year shows that its use is growing. In 1912, the first steam turbo-electric plant will be put into operation at Kepong, in Selangor and there are signs that hydraulic and hydro-electric power schemes will be more seriously considered than theretofore. The use of suction gas plant is increasing . . . " [30]

The same report concludes by saying that it "is . . . very satisfactory to note that the horse-power of plant has considerably increased." [31] The table on page 45 documents the changes occuring in the total horse-power of the plant in mining.[32]

There are not sufficient data available to quantify for all Malayan mines the working costs of the various mining methods. It may be inferred, however, that the continuing trend to more capital-intensive methods indicate the economic superiority of such methods. The table on p. 46 reproduces data on several mines as compiled by D.C. Alexander on the comparative working costs of treating per cubic yard of karang by the three principal mining methods (in 1912). It is difficult, of

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[30] Report on the Administration of the Mines Department and on the Mining Industries for the Year 1911 (Kuala Lumpur: F.M.S. Government Printing Office, 1911), p. 15.

[31] Ibid., p. 18.

[32] Calculated from the data in Report of the Mines Department, 1909-1922. The 1914 Report includes the note "More exact methods of rating the horse-power were adopted, hence the large apparent difference (15,871 horsepower) as compared with 1913, the actual increment was about 5,000 horse-power." (p. 8).

	Steam	Steam-Electric	Hydraulic	Hydro-electric	Suction Gas	Suction Gas Electric	Oil Engines	Oil Electric	Total
1911	8,826	1,663	6,479	1,500	1,563		592		20,623
1912	10,751	862	6,918	1,512	1,318		1,247		22,608
1913	9,351	3,400	7,239	1,625	1,561	250	2,330		25,756
1914	18,923	1,980	11,886	2,731	1,992		2,099	2,012	41,623
1915	24,589	3,620	17,118	3,172	3,051		2,950	1,697	56,197
1916	24,810	4,255	17,911	3,549	2,203		3,851	1,495	58,074
1917	23,748	2,420	18,524	4,395	1,794		2,692	2,003	55,576
1918	27,506	2,427	18,334	4,512	2,219		3,171	2,153	60,040
1919	25,826	2,771	17,497	4,686	1,811		2,552	2,200	57,343
1920	29,889	3,652	18,859	4,637	1,993		3,730	1,600	64,360
1921	28,642	2,239	17,464	4,546	1,056		1,245	4,000	59,200
1922	29,612	2,748½	16,281	4,855	1,689		1,493	2,600	59,278½

HORSE-POWER OF THE PLANT IN MINING, 1911-1922

course, to say with precision how representative the estimates are. There appears to be no evidence to suggest that the data are unrepresentative.[33]

MINING METHOD	NAME OF MINE	COST PER CUBIC YARD
Hydraulic	Tekka	$0.13
Gravel-pump	Pengkalen	$0.57
Open-cast	Tambun	$0.61
Open-cast	Lahat	$0.94

This growing capital-intensity with concomitant lower costs per cubic yard of karang was one of the most important factors in the growing domination of tin mining by Europeans. In 1910, less than a fourth of total output (22%) was produced by the European sector of the industry. Seventy-eight percent was produced by the Chinese sector. By 1919, the European share had risen to 32% and by 1929, Europeans produced 51%. By the mid- to late thirties, the European share hovered around two-thirds-- the figures being 66% in 1932-35 and 68% in 1937.[34] The factor most important in the growing European domination and in accelerating the trend to capital-intensity was, of course, the 1912 introduction of the dredge. The first dredge introduced was able to dig to a depth of 50 feet and had a monthly capacity of 80,000 cubic yards.[35] In a short time, the volume of ground treated rose sharply. Whereas earlier European contributions to tin mining techniques have been described as mechanizing some of the processes of tin mining, introduction

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[33] Yip, op. cit., p. 131.

[34] Lim Chong-Yah, Economic Development of Modern Malaya (Kuala Lumpur: Oxford University Press, 1967), p. 54 and Fermor, op.cit., p. 64.

[35] Bradford, E.F. and Ingham, F.T., Geology and Mineral Resources of the Kinta Valley, Perak, District Memoir 9, Federation of Malaya Geological Survey, (Kuala Lumpur: Government Printing Office, 1960), The early dredges are described in Chapter XIII.

of the dredge brought about a completely new technique. A dredge operates in an artificial pond which it itself has created. It digs at one side of the pond and rejects the washed waste material on the other side, thus carrying the pond with it. A bucket-dredge consists of a mechanical excavator and a screening and washing plant mounted on a barge. In dredging, all three processes earlier described-- excavating, lifting and separating the tin ore from waste material-- are performed by mechanical means. The karang is excavated and lifted to the surface by means of a chain of buckets. The karang is treated to separate the tin ore from the waste material by the use of jigs. Following these processes the waste material or tailings are rejected as the dredge moves along. The productive capacity of the dredge depends on the size of the buckets and the depth at which the buckets can dig.

Dredging represented an important advance in mining techniques in Malaya. It solved the problem of working deposits in swampy grounds. Such grounds could be worked by other methods only with the use of expensive pumping machinery and therefore at high average cost. Dredging thus made possible the treating of karang at a cost per cubic yard lower than most other mining methods.[36] Lands that were previously left untouched as not profitable to work could, after the introduction of the dredge, be worked. "Worked out" mining lands such as those of Larut with

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[36] This is the conclusion drawn by Yip op.cit., on the basis of the limited data available. The accelerating trend to the use of dredges after 1912 would seem to confirm Yip's conclusion. See page 133. The introduction of new dredges would continue for many years to be a factor in reducing cost. See the account of the 21st annual general meeting of Malayan Tin Dredging, Ltd. in which it was reported that "the cost per cubic yard of ground worked shows a reduction from 11.26 cents last year to 7.91 cents in the year under review. The substantial reduction in costs is to a certain extent accounted for by the new dredge operating through an area of partly and therefore easily worked ground." The Straits Times, January 5, 1933, p. 9.

an average tin ore content of .5 to 1 kati per cubic yard now came within the range of profitable mining by dredges. In general, the introduction of dredging also enlarged the scale of mining operations in Malaya. "With the application of about 300 mechanical horse-power and 90 coolies under European supervision, . . . a dredge with 12 foot buckets could dig and treat in one day as much karang as 2,000 Chinese coolies during the same time."[37]

In a period of less than ten years, 1921 to 1929, though working deposits that often yielded less than half a kati per cubic yard of karang (in contrast to yields of 2-5 katis per cubic yard of karang in turn-of-the-century opencast mining), the output of tin nearly doubled.[38] The growth of the tin industry continued to be in response to developments in the West. U.S. auto registration reached 8 million in 1920 and continued to grow rapidly during the twenties.

In the new capital-intensive mining that spread rapidly after 1912, the cost of fuel came to represent a larger and larger part of working cost. This derived from the fact that power had to be generated for the draining of excess water from the mine pit, for breaking down and lifting the karang to the surface and for separating the waste material from the tin ore-- i.e., the processes performed by mechanical means inside the dredge itself rather than by man-power (with the aid of the chin-chia) as in early Chinese mining.

Between 1912 and 1920, the number of dredges in use rose from 1 to 20. In 1929, the number of dredges in use peaked at 105 dropping

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[37] Ibid., p. 134.

[38] Ibid., p. 130. See the figures on yield.

to 69 in 1930 as voluntary restriction of tin output made itself felt.[39] The number of workers employed on dredges stood at only 228 in 1913. By 1920 this figure had risen to 2,844 and by 1929 to 16,817.[40]

In general there is reason to be suspicious regarding the reliability of data pertaining to the magnitude of coefficients in export industries of underdeveloped countries-- the gathering of reliable statistics itself being somewhat underdeveloped in these countries. However, there does exist in the case of Malaya sufficient data to provide convincing quantification of the trend to capital-intensity that has been described. In 1909, the labour employed in tin mining in Malaya stood at 183,119. Output for 1909 in terms of Revenue Product was £6,401,262 or in terms of Physical Product was 48,743 tons.[41] Based on this data, it is possible to express as a ratio or percentage the number of labourers employed per unit of tin output, i.e., labourers/output in 000's of £'s was 28.5 in 1909 and labourers/output in tons was 3.75 labourers per ton in 1909. As calculation of the labourers/revenue product ratio would be greatly influenced by the price of tin, the following table employs the physical product measure only and shows the declining number of labourers per ton of tin output.[42]

No. of Labourers per Ton of Tin Output

1912	4.39	1918	3.87
1913	4.50	1919	3.06
1914	3.50	1920	2.56
1915	3.52	1921	2.50
1916	3.17	1922	2.33
1917	3.10		

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[39] Ibid., p. 163.

[40] Lim, op. cit., p. 52.

[41] Data are from Jackson, op. cit., p. 141.

[42] Computed from the Report of the Department of Mines, op. cit., 1914-22.

Though some slight aberrations do occur, the trend from the early part of the century to the 1920's was clearly to the use of less labour per unit of output. The number of labourers in tin mining, it has been noted, fell by 62% between 1907 and 1922--that is from 229,778 in 1907 to 82,195 in 1922. (An appendix to this chapter will provide a table showing the number of labourers engaged in mining in the years 1907-1922.) [43] The trend being discussed here can also be illustrated by calculating the ratio of horse-power to output. Because of the price change distortion mentioned earlier, physical product, rather than revenue product, is used as the measure of output.

Horse-power/Output in Tons [44]

1909	.284	1918	1.607
1911	.467	1919	1.553
1914	.849	1920	1.842
1915	1.202	1921	1.716
1916	1.324	1922	1.680
1917	1.395		

An earlier table provided detail on the rapid growth of total horse-power of plant. The figure rose rapidly from about 22,000 horse-power in 1912 to about 56,000 at the end of World War I. Horse-power

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[43] Ibid., and Jackson, loc. cit. The manner in which the data are presented does not always make it possible to sort out tin mining labourers from total mining labourers. However, the difference between the two magnitudes is negligible. Compare the 1922 figure for all mining labourers of 82,195 as provided by the Department of Mines to the 1922 figure of tin mining labourers of 81,898 as reported by Jackson. The above figures are inclusive of individual licenses but exclusive of dulang pass holders.

[44] Calculated from the Report of the Mines Department, op. cit., 1909-1922.

used remained in the 55,000-65,000 range well into the twenties. The following table confirms the earlier mentioned fact that the volume of ground treated rose rapidly with growing capital intensity. Though the figures are for Perak alone, they are indicative of the trend throughout Malaya. [45]

Year	Volume of Ground Treated: Cubic Yards
1913	260,353
1914	772,798
1915	1,967,790
1916	3,252,000
1917	3,141,300
1918	3,220,300
1919	3,256,540
1920	2,558,500
1921	3,258,200
1922	3,682,000
1923	4,206,400
1924	4,599,700
1925	4,073,400
1926	4,240,800
1927	5,188,700
1928	5,458,940
1929	6,049,750
1930	6,143,900
1931	4,977,500
1932	4,955,800
1933	2,561,100
1934	3,745,400
1935	5,048,760
1936	7,007,500
1937	10,144,300
1938	11,617,300
1939	4,561,800
1940	8,122,300

Earlier numerous developmental repercussions important to this study were spelled out. The magnitude of labour and capital coefficients is an item of major interest in the analytical framework that has been established. Having discussed and, to the extent possible, quantified the labour and capital coefficients of the tin industry in Malaya, subsequent chapters will investigate to what extent these repercussions occurred.

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[45] Bradford and Ingham, op .cit , p. 157.

APPENDIX I[46]

Exports of Tin (1905 to 1930) and Production (1931 to 1938)

Year	Tons	£'s
1905	50,991	7,063,407
1906	46,941	8,297,152
1907	48,431	8,095,133
1908	50,837	6,654,017
1909	48,743	6,401,262
1910	43,862	6,662,555
1911	44,148	8,132,869
1912	48,228	9,815,547
1913	50,126	9,758,421
1914	49,042	7,080,570
1915	46,761	7,164,986
1916	43,869	7,526,566
1917	39,832	8,489,613
1918	37,832	11,032,234
1919	36,935	8,736,480
1920	34,935	10,316,713
1921	34,491	5,748,748
1922	35,285	5,577,118
1923	37,649	7,508,502
1924	44,044	10,720,622
1925	45,926	11,861,771
1926	45,947	13,021,204
1927	52,180	14,822,330
1928	61,935	13,860,554
1929	67,043	13,715,098
1930	62,065	8,866,871
1931	50,654	5,908,531
1932	26,538	3,585,461
1933	23,894	4,682,660
1934	32,567	7,302,572
1935	40,787	8,891,799
1936	64,682	12,761,136
1937	75,118	17,414,457
1938	41,206	7,522,711

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[46] Fermor, op. cit., pp. 58-59.

1905-1918-- Figures obtained from Colonial Statistical Abstracts

1919-1938-- Figures have been taken from the Annual Reports of the Mines Department, Federated Malay States. Those given for the years 1919-1930 are actual exports, after adjustment has been made for inter-State trade, and those given for 1931 onwards are for production by each State, as ascertained by sales.

APPENDIX II[47]

Price of Tin (per ton)

Year	£	S.	d.	
1905	143	1	8	
1906	180	12	11	
1907	172	12	9	
1908	133	2	6	
1909	134	15	6	
1910	155	6	2	
1911	192	7	0	
1912	209	8	5	
1913	201	13	7	
1914	151	2	9	
1915	164	4	0	
1916	182	3	5	
1917	237	13	1	
1918	329	11	2	
1919	257	9	8	
1920	296	1	7	
1921	165	8	2	
1922	159	10	9	
1923	205	5	0	
1924	248	17	4	
1925	261	1	8	
1926	291	3	0	
1927	289	1	4	
1928	227	4	8	
1929	203	18	10	
1930	141	19	11	
1931	118	8	11	
1932	135	18	10	1/2
1933	194	11	11	
1934	237	7	4	3/4
1935	225	14	5	1/2
1936	204	12	8	
1937	242	6	7	
1938	189	12	0	

[47] Ibid., p. 76.

Chapter III

RUBBER: THE DEVELOPMENT OF AN EXPORT INDUSTRY

Malaya's second large export industry is rubber. The industry was developed slightly later than tin and was, like tin, in large part, responsible for the economic growth of the early Twentieth Century. This chapter traces the growth of plantation rubber in Malaya and investigates several major themes regarding the industry.

Rubber is an industry that clearly meets the specifications of the earlier established analytical framework. It is well-suited to the climatic conditions of the country and its production involves the use of a high labour coefficient over a wide range of relative factor prices.[1] As Robert Baldwin notes in his study of Rhodesia, "data pertaining to the magnitude of the labour coefficients in major export industries of underdeveloped countries are not extensive nor very reliable. But there is no doubt that the coefficients for such commodities as tobacco, tea, rubber, coffee and sugar are significantly greater than for the other main group of export industries developed in the poor countries, namely, mineral products such as oil, copper, bauxite and iron ore."[2] A description of the basic processes of rubber production will establish the rubber industry as labour-intensive. Also, figures will be provided on the number of estate (rubber plantation) workers and rubber output.

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[1] In Malaya's case, the labour employed to develop rubber as an important export industry was imported from China and India. This importation of labour is discussed in Chapter IV.

[2] Robert E. Baldwin, Economic Development and Export Growth (Berkeley: University of California Press, 1966), p. 61.

As it was the British who introduced rubber to the Malay Peninsula, the early growth of rubber was centered on estates controlled from London. Side by side with estates, however, smallholder production of rubber grew to be very important. In fact, rubber was a cash crop exceptionally well-suited to smallholder production. The production function was such as to allow the growth of a mutualistic relationship between the export crop, rubber, and other items grown for consumption such as rice and Kampong crops. The suitability of rubber as a smallholder crop is reflected in low smallholders' costs of production-- a low claim on real resources. There is, however, considerable difficulty in finding reliable statistics to compare estate and smallholder costs--even though many statistics are available.[3] The difficulty of gathering reliable statistics derives from many factors. Consider, for example, that for some years in which estates paid dividends, their "reported" costs were higher than the price of rubber.[4] These costs, reported for the purpose of setting export quotas during rubber restriction, were often accepted without question by the I.R.R.C. (International Rubber Regulation Committee).[5]

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[3]Later in this chapter, the available data on cost in this period will be summarized.

[4]P.T. Bauer, The Rubber Industry (London: University of London Press, 1948) p. 205.

[5]Sometimes, however, the I.R.R.C. was not so tractable. The Straits Times, January 27, 1937, p. 7 reports that "on May 29, 1936 the International Rubber Regulation Committee requested the Rubber Growers Association to examine the costing formula, particularly in the light of the discrepancy between costs as returned to that committee and costs as published by individual producers". See this interesting and long article which comments on the various entries in the costing formula e.g., "There is a wide variation in the cost of this item [Head Office Expenses] as between companies"; "your committee were in considerable doubt as to the adoption of sinking fund methods".

In analyzing cost one is faced with the further problem that in this period and particularly in the 1930's, both prices and costs were changing from month to month and in some cases from day to day.[6] This led to "increasingly frequent" estimates of "the chances of survival and the life-expectation of the various companies, on the basis of assumed prices in conjunction with the costs as given in or calculated from the last published reports and the available liquid funds of individual companies."[7] Clearly this established another reason for tendentiousness in reporting costs.

Even if one could be satisfied with the reliability of reported estate costs, there remains the problem that "the crudest ideas have always been prevalent about the efficiency and soundness of the methods of smallholders."[8] No doubt this was reflected in the estimates of smallholder costs.

All of the above factors serve to make comparison of estate and smallholders costs a very risky business. Thus, in lieu of reliable statistics for analysis, this study attempts to arrive at a general conclusion of smallholdings' greater efficiency by analyzing production processes in terms of the cost formula provided by R. Soliva, corroborated by the data available in newspapers and other sources.[9] Whereas actual cost estimates are made by Soliva, and will be reported, the

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[6] Bauer, op. cit., pp. 32-33. Between the end of 1929 and the middle of 1932, for example, sterling companies generally reduced their costs by about 60% and locally registered Malayan companies by about 65%.

[7] Ibid., p. 32.

[8] Ibid., p. 204.

[9] R. Soliva, An Economic View of Rubber Planting (Singapore: Kelley and Walsh, Ltd., 1930). This formula was chosen for use in this study after an extensive survey of the literature. Soliva's formula is particularly useful in showing the many items of cost present for estates but not for smallholders.

greater concern is to establish that smallholders were at least as efficient and very likely more efficient than estates. (Efficiency here is used in an economic sense. The lower smallholder cost represented a smaller claim on the stocks and flows of real resources.)

Our discussion of rubber's early history begins with the observation that when certain trees or plants are pricked, they exude a milky liquid which is called latex. This latex consists of tiny particles of solid matter suspended in a liquid. When the latex is coagulated, the rubber particles form into a solid mass. In most cases, the latex is coagulated by the addition of a weak acid such as acetic acid. The solid rubbery mass obtained by the coagulation of the latex may then be rolled and dried to be placed on the market as crude rubber. Its most important physical properties are elasticity, resilience and impermeability. These physical properties give rise to myriad uses of rubber in clothing, footware and industry. MacFadyean notes that "of all known sources of rubber, the latex of the Hevea brasiliensis gives the greatest amount of the pure hydrocarbon with the least amount of extraneous matter and for this reason among others the Hevea brasiliensis has become the rubber tree of commerce."[10]

Rubber was known to Europeans as early as the time of Columbus who in the fourteen nineties observed the natives of Haiti playing with

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[10]Sir Andrew MacFadyean, The History of Rubber Regulation 1934-1943 (London: George Allen and Unwin, Ltd., 1944), p. 1. Other important rubber plants are the Castelloa elastica, Manihot glaziovii, the Ficus elastica and others found in Central and South America, Southeast Asia and Africa. See Chapter 1-- from which the early comments in this chapter draw heavily-- for further details.

balls made from the gum of a tree. A century after Columbus, Spanish troops in Mexico used rubber to waterproof their garments. In the mid-1700's, the French scientist, Charles de la Condamine, collected samples along the course of the Amazon and sent them to France. By the early 19th Century, rubber manufacturing was passing from the laboratory stage to the workshop.

Rubber manufacturing was begun in England where in 1820 Thomas Hancock applied for a patent to manufacture from rubber various articles of clothing. In 1823, Charles Macintosh took out a patent for the manufacture of rubber-proofed fabrics. Soon rubber factories were opened in France and America.

The discovery by Hancock of a process called Mastication by which rubber is made more plastic and workable was of considerable benefit to the young rubber manufacturing industry. Yet crude rubber was still very difficult to work with due to the fact it became soft and sticky in hot weather and hard and brittle in cold weather. The discovery of the process of vulcanization by Charles Goodyear in 1839 solved these problems. In vulcanization, crude rubber and sulphur are mixed and heated. The resultant material is stronger, more elastic and better able to withstand heat and cold than the original crude rubber. Varying the proportion of sulphur added resulted in various ranges of elasticity. With Goodyear's discovery, the most important technical problems of the industry were solved.

In the late 19th and early 20th Centuries, both rubber cultivation and rubber manufacturing were given a great fillip by events in the West. Of special importance was the 1888 discovery by Dunlop of

the pneumatic tire. It was immensely successful, adding greatly to the comfort of cycling, and within a few years every bicycle was fitted with the new tires. The first car with pneumatic tires appeared in 1895. With footwear still an important item, the continuing popularity of the bicycle and the advent of the automobile, the induced demand for rubber grew rapidly. Throughout the last half of the 19th Century, wild rubber production was barely able to keep pace with the growing demand. Wild rubber production, which stood at just over 1,000 tons in 1850 increased to 54,000 tons by 1900.[11]

The increased demand for rubber resulted in a higher price for the commodity as the following prices reported by MacFadyean as "only approximate" show:[12]

	per lb.		per lb.		per lb.
1890	4s. 0d.	1899	4s. 0d.	1907	5s. 0d.
1893	3s. 0d.	1900	4s. 0d.	1908	4s. 3d.
1895	3s. 0d.	1905	5s. 0d.	1909	7s. 0d.
1896	3s. 3d.	1906	5s. 0d.	1910	9s. 0d.

The events described so far culminated, around the turn of the century, in the establishment of rubber plantations in Southeast Asia. The arrival in Asia of Hevea seeds, via Kew Gardens and through the efforts of Henry A. Wickham, is a well known story that will not be repeated here. Suffice it to say that by 1895, it was established that the Hevea tree was well-suited to the cultivation of rubber on large plantations. It grew better than other varieties, yielded more rubber and the rubber was of better quality. At about the same time that rubber was being established by English growers as a plantation crop in

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[11] K.E. Knorr, World Rubber and Its Regulation (Stanford, California: Stanford University Press, 1945), p. 9.

[12] MacFadyean, op. cit., p. 9.

Malaya, efforts were made by many nations in many parts of the world to establish rubber plantations. These included attempts in other Southeast Asian countries such as the N.E.I. and Ceylon, in Oceania, Mexico, Africa, and Brazil. Several factors were of importance to the colonial powers in choosing Malaya and the N.E.I. as desirable sites. Paramount among these factors were the highly favorable climatic conditions and the availability of abundant labour within the territories themselves or in neighboring India and China.[13]

It is also noteworthy (and analagous to developments in the tin industry) that the very rapid growth of plantation rubber in the early 20th Century received ongoing stimulation from events occurring in the West. Of particular importance was the increase in the number of automobiles in the United States. U.S. automobile registration in 1895 stood at 4 vehicles. By 1900, registrations totaled 8,000. In 1905, the number stood at 77,400 and in 1910, 458,500. By 1920, registrations had risen to 8,225,859.[14]

In response to the growing demand for rubber in the U.S. and Europe, acreage planted in the East increased sharply. Planted acreage of about 5,000 in 1900 increased to nearly 150,000 acres by 1905, to 1,000,000 acres by 1910 and over 1,500,000 by 1911.[15] With the demand

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[13] Ibid., p. 10. Also important, no doubt, were the stable governments provided by England and Holland, the availability of suitable land, the absence of transport difficulties and the fact that the early experimental work on rubber planting was carried out in the East.

[14] Charles R. Whittlesey, Governmental Control of Crude Rubber (Princeton: Princeton University Press, 1931), p. 35, citing Facts and Figures of the Automobile Industry, 1929 edition, National Automobile Chamber of Commerce, New York, 1929, p. 5.

[15] MacFadyean, op. cit., p. 9. John Drabble, "The Plantation Rubber Industry in Malaya up to 1922," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. XL, 1967, p. 75 provides figures on expansion of rubber acreage in Malaya between 1900-22. Also see J.H. Drabble, Rubber in Malaya 1876-1922, (Kuala Lumpur: Oxford University Press, 1973) particularly the appendices, for additional data relating to the growth of rubber in Malaya.

for tires and tubes providing the stimulus, the number of companies producing rubber in Malaya rose by 1910 to 76. The average dividend of the companies was 18%.[16] So profitable were the new rubber companies that one of the companies paid an average annual dividend of 225% over the nine years from 1911 to 1919, while a list of eleven of the most prosperous companies, selected by Mr. Harvey S. Firestone for propaganda purposes, shows an average dividend per company over that period of 117%.[17] Lawrence comments on the popularity of speculating in rubber: "The average citizen who could find money for the purchase bought rubber shares-- any rubber shares-- all rubber shares and then sat down for seven years to wait for fabulous returns."[18] By 1914, the year when production of plantation rubber surpassed wild rubber, there were 138 sterling rubber companies in Malaya paying an average dividend of 11.25% for the year.[19] The table on page 62 details the change from wild rubber to plantation rubber as the primary source of this important commodity.

What is observed, basically, in the early 20th Century is the creation of a rubber plantation industry to service the needs of the rapidly growing U.S. automobile industry. The Production Index in Tire Manufacturing provided by the U.S. Bureau of Labour Statistics shows

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[16] Whittlesey, op. cit., p. 15.

[17] Ibid., citing India Rubber Review, Akron, Ohio, The India Rubber Review Co., January, 1923, p. 10.

[18] James Cooper Lawrence, The World's Struggle with Rubber (New York: Harper and Brothers, 1931), p. 15.

[19] Whittlesey, op. cit., p. 17. An appendix at the end of this chapter provides additional details on dividends paid by the rubber companies during the period of their most rapid growth.

WORLD PRODUCTION, PLANTATION AND WILD RUBBER[20]

Years	Plantation Tons	Total wild (tropical America and Africa) Tons	World Production Total Tons	Planta-tion Percent	Wild Percent
1905.....	174	59,230	59,494	0.3	99.7
1906.....	577	62,581	62,581	0.9	98.1
1907.....	1,157	66,013	66,170	1.7	98.3
1908.....	1,796	64,770	66,566	2.7	97.3
1909.....	3,386	70,370	73,756	4.6	95.4
1910.....	7,269	73,477	80,746	9.0	91.0
1911.....	14,383	68,446	82,829	17.4	82.6
1912.....	30,113	73,834	103,947	29.0	71.0
1913.....	51,721	63,280	115,001	45.0	55.0
1914.....	73,153	48,052	121,205	60.4	39.6
1915.....	114,277	54,740	169,017	67.6	32.4
1916.....	158,993	51,086	210,079	75.7	24.3
1917.....	221,187	56,751	277,938	79.6	20.4
1918.....	180,800	36,711	217,511	83.1	16.9
1919.....	348,574	50,424	398,998	87.4	12.6
1920.....	305,671	36,464	341,135	89.3	10.7
1921.....	276,746	23,903	300,649	92.0	8.0
1922.....	378,232	27,878	406,110	93.1	6.9

From Plantation Rubber in the Middle East, Figart, U.S. Dept. of Commerce, 1925, p. 5.

tire production increasing from 100 in the base year of 1914 to 394 for 1919 and 680 for 1925.[21] The situation that obtained in the early 1920's was one in which production of crude rubber was centralized in the hands of one nation, England, and consumption in another nation, the United States. "Of the total acreage of plantation rubber in 1922, England controlled 69% through domicile in British colonies and a total of 75%

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[20]Lawrence, op. cit., p. 16.

[21]Whittlesey, op. cit., p. 156.

through British ownership of plantations in the Dutch East Indies."[22] Three-fourths of the world's crude rubber production-- the bulk of which went into tires and tubes-- was consumed in the U.S.

At this point it will be instructive to provide rather more detailed figures on the number of estates and estates' acreage in Malaya. In 1922, the first year for which adequate statistics are available, estate acreage stood at 1,410,000 acres and smallholder acreage at 918,000 acres. By 1930, the respective figures had risen to 1,876,000 and 1,173,000.[23] Whereas only 460 British estates were producing rubber in 1922, they are estimated to have increased to over 800 by 1930.[24] By 1940, estate acreage had risen to 2,113,000 acres with smallholder acreage at 1,351,000.[25] Knorr estimates that in 1940, there were about 2500 European estates. The 600 largest, each over 1,000 acres, controlled 73% of the total acreage. The other 1900 estates, ranging from 100 to 1,000 acres, owned only 27% of the country's rubber estate area.[26] The largest companies around 1930 were the following:[27]

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[22]Lawrence, op. cit., p. 17.

[23]Lim Chong-Yah, Economic Development of Modern Malaya (London: Oxford University Press, 1967), p. 328 citing Malaya, Rubber Statistical Bulletin, 1941, p. 8.

[24]Lawrence, op. cit., p. 20 citing the Bulletin of The Rubber Growers Association, Vol. 22 (London, May, 1928), and Soliva, op. cit., pp. 9-10.

[25]Lim, loc. cit.

[26]Knorr, op. cit., p. 24.

[27]Soliva, op. cit., p. 9.

	Acres
Dunlop Rubber Plantations, Ltd.	85,000
S.I.P.E.F. (F.M.S. Rubber Co., Ltd. and other subsidiaries)	80,000
Société Financière des Caoutchoucs (several companies, but under the same general manager)	28,000
Malayan American Plantations, Ltd.	24,000
Malacca Rubber Plantations, Ltd.	22,000
Anglo Java Rubber and Produce Co., Ltd.	23,000
United Sua Betong Rubber Co., Ltd.	22,000
East Asia tic Rubber Co., Ltd.	23,000
Penang Rubber Co., Ltd.	16,000
London Asiatic Rubber and Produce Co., Ltd.	11,000
Linggi Plantations, Ltd.	10,000
Straits Rubber Co., Ltd.	10,000

Almost all of these companies maintained their Head Office and Board of Directors in London. Most of the estates were controlled from London as explained by Figart:

> Most of the rubber companies registered in Great Britain and many registered in the East are controlled through certain London firms, which have representatives in the East and do a general import and export business. These firms, known as secretaries or agents, may or may not hold shares in the rubber companies in their group; but usually one or two directors of the agency firm are also on the boards of directors of the rubber companies in the group. The number of rubber companies in the group ranges from 2 or 3 up to 60 or 70. Thus a director of the London agency firm may hold directorships in 20 or 30 rubber companies in that group."[28]

A list of the most important agency firms in 1930 would have included the following firms:[29]

Messrs. Harrisons, Barker & Co., Ltd.
(Subsidiary of Harrisons, Crosfield & Co., Ltd., London)
" Henry Waugh & Co., Ltd.
" Sime, Darby & Co., Ltd.
" Sandilands, Buttery & Co., Ltd. (Eastern Industries, Ltd.)
" Boustead & Co., Ltd.

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[28]Lawrence, op. cit., p. 21 citing Figart, The Plantation Rubber Industry in the Middle East, U.S. Dept. of Commerce, 1925, p. 95.

[29]Soliva, op. cit., pp. 10-11.

Messrs. Barlow & Co., Ltd.
" Guthrie & Co., Ltd.
" Cumberbatch & Co., Ltd.
" The Borneo Co., Ltd.
" Francis Peek & Co., Ltd.
" Adamson, Gilfillan & Co., Ltd.
" Paterson, Simmons & Co., Ltd.
" Anglo Siam Corporation, Ltd.

Directors' fees of £100 per year were common. Thus the agency system represented, to an individual holding twenty or thirty directorships, a most satisfactory and lucrative arrangement. Below the rubber company directors, there also existed "visiting agents." For a fee plus expenses, they visited properties in the East to report to the Board of Directors on the condition and management of their properties. They too had nothing to gain from consolidation or any other change which would reduce the number of fee-paying companies. This administrative hierarchy constituted one of several important items of fixed cost on European estates which will be discussed more fully in subsequent pages.

Up to this point the discussion has concentrated on estates. As the earlier figures on acreage indicate, however, smallholder rubber also represented an important segment of the industry that grew side by side with the estates. A more detailed discussion of smallholders can begin with Professor Bauer's observation of "a familiar dilemma which often confronts colonial administrators: the choice between efficient but alien methods of production, supported by outside capital, and local, but primitive and inefficient effort. In plantation rubber this dilemma does not arise."[30] This is a factor of great importance.

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[30]P.T. Bauer, Report on a Visit to the Rubber Growing Smallholdings of Malaya (London: HMSO, 1948), p. 37.

Another factor of great importance is that the rubber plantation industry did not come about by the exploitation of an established native industry by Europeans. The industry was brought to Malaya and other parts of Asia by European enterprise, as MacFadyean notes, "to the very material benefit of the natives."[31] Smallholder entry into plantation rubber was made with the first native planting of Hevea trees in Djambi, N.E.I. in 1904. Increased acreage in smallholder rubber followed rapidly (see earlier figures on acreage) with especially heavy planting being induced by the high prices of the 1910-1919 and 1924-29 periods.[32] It is also very significant that native acreage was increasing throughout Southeast Asia. MacFadyean estimates acreage in Southeast Asia at 75,000 acres in 1909. It rose to 1,650,000 in 1920, 3,930,000 in 1930 and 4,275,000 in 1940. This compares to 425,000 estate acreage in all of the Southeast Asia in 1909, 2,545,000 acres in 1920, 4,020,000 in 1930 and 4,588,000 in 1940.[33] By 1935, there were in Malaya about 700,000 Malay holdings averaging about 4 acres and approximately 567,000 Chinese and Indian holdings which were on average "about four times as large."[34]

Rubber appealed to smallholders in Malaya and elsewhere as a cash crop whose cultivation appeared both profitable and congenial. That the natives were able to take advantage of this cash crop, that the "familiar dilemma" mentioned by Bauer did not occur in the case of rubber depended very importantly on the fact that the productive techniques

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[31] MacFadyean, op. cit., p. 11.

[32] Knorr, op. cit., p. 31.

[33] MacFadyean, op. cit., p. 11.

[34] Knorr, op. cit., p. 32.

of this labour-intensive industry were very simple with economies of scale being virtually absent. To better understand the interaction of the two sectors of the rubber industry, we now turn to a discussion of the technique of and economics of rubber production.

First, a general description of rubber production is provided to establish that all phases of the operation-- from the planting of the seeds to the smoking of the sheets-- are labour-intensive.[35] Furthermore, the final product, as turned out by estate or smallholders, is highly standardized and easily marketable. The Planting Correspondent of the Straits Times is convincing on this point. " . . . scientific skill can not greatly enhance market worth. A fractionally better price for cleanliness or form is all that the most expensive factory treatment under European direction can command. Few of us with practical experience in Malaya will deny that this viewpoint is very far from being an incorrect one."[36] This description of production processes will make possible a comparative analysis of the costs of the two classes of producers.

We begin with recollection of the fact that the Hevea brasiliensis is the most important tree in rubber production. The tree thrives over a wide range of soils, but requires a warm moist climate.[37] The tropical belt within 20° north and 10° south of the Equator, a region including the Malay Peninsula, is especially well-suited to plantation rubber. In the opening of European rubber estates, in Malaya and elsewhere in Southeast Asia, saplings, 100 to over 200 to the acre, were planted in regular

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[35]Bauer, The Rubber Industry, p. 14. Being simple and easy processes, there are no significant economies of scale.

[36]The Straits Times, April 5, 1935, p. 13.

[37]Soliva, op. cit., pp. 12-17. See for a description of the zones planted with Heveas along the western coast of Malaya.

rows on thoroughly cleared jungle land. When the trees reached bearing age, 5 to 7 years after planting, the stand was usually reduced to about 100 trees per acre by the elimination of the least healthy plants. The average number of trees on smallholdings opened up in Malaya tended to be much greater than on estates-- averaging 220 trees.[38] This much higher density on smallholdings led to considerably higher yields per acre-- a factor of importance in discussing cost.

The renewal of the latex-secreting bark of the Hevea is more or less continuous through the economic life-span of the tree with the life-span depending on the suitability of the physical environment and on cultivation and treatment. The yield of a tree just tappable is only about half that of a mature plant of 13 years.

Tapping-- an important item of cost in rubber production-- consists of drawing latex from the tree by making an incision in the bark.[39] The amount of latex yielded depends on the depth and angle of the incision. The exuding latex is collected in a cup hung below the incision. On the average a little over half of the labour staff of a European rubber estate were employed as tappers. The bulk of the remaining labourers were employed as field workers and weeders. About 2% of the workers were employed for "factory" work.[40] The tappers in Malaya

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[38]Knorr, op. cit., p. 34. Knorr says that in some cases the number of trees per acre averaged up to 500. The average for the N.E.I. was 350. See Knorr, Chapter 1, from which much of the information in this section is drawn.

[39]John Drabble, The Plantation Rubber Industry in Malaya: Its Origin and Development to 1922, Thesis presented for the degree of Doctor of Philosophy in the University of London, February, 1968. See Chapter 2 on tapping.

[40]Knorr, op. cit., p. 26.

in the period under consideration were largely Indians, and to some extent Chinese, brought to the country to work on European estates. (This is described in detail in Chapter IV.)

The next stage in rubber production is preparation of the crude rubber. The collected latex is taken to the factory of the rubber estate where it is cleaned by skimming and sieving. It is then transferred to a coagulation tank where acid is added to speed coagulation. On estates, aluminum sheets two inches apart are generally inserted vertically while the latex is still fluid. Overnight the liquid jells to form wet doughy curds. "After removal of the partition the slabs of coagulated latex are taken out, cleaned with water, put through smooth rolls which press out of the water and then passed through a mill with grooved rolls which 'rib' the slabs."[41] The ribbed sheets are again washed and drained and then put into a smokehouse to dry and cure for several days. The smoking process inhibits the formation of molds and bacteria and gives the "ribbed smoked sheets" a uniform color. Ribbed smoke sheets made up about 85% of the estates' rubber production. Most of the remainder was crepe rubber which required somewhat heavier machinery.[42]

On smallholdings, the "factory" differed somewhat. The smallholding factory consisted of "a shed having one or two hand-mangles" where "the water is often eliminated simply by pressing with hands and feet. Final drying is done by placing the rubber in a hot chamber (usually termed smoke-house) or simply by exposing it to the sun."[43]

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[41] Ibid., p. 22.

[42] Ibid.

[43] Bauer, The Rubber Industry, p. 1.

As the preceding discussion shows all of the rubber production processes are simple and labour-intensive.

> "This differentiates rubber production radically not only from an extractive industry like tin-mining, but also from other branches of tropical agriculture . . . It is more like the copra industry which in native hands at any rate requires no more than the gathering of the coconuts and the drying of the flesh of the nut."[44]

With the rapid extension of rubber acreage in the period before the introduction of restriction, investment in rubber resulted in positive changes in rubber employment. (This contrasts to the tin industry in which investment, post-1912, tended to displace labour).[45]

The nature of the production function then was important in rendering rubber an excellent smallholder crop. So amenable to production by small units was the crop that smallholders produced rubber at lower cost than estates-- as the balance of this chapter will show.

Ideally, at this point in the discussion, reliable data on the comparative cost of estate and smallholding production would be brought forth. However, as earlier noted, the researcher has many reasons to be suspicious of the reliability of reported cost figures. This difficulty in making detailed comparison of estate and smallholder cost is especially lamentable in view of the fact that efficiency as reflected in cost figures was an important question that returned in "various guises . . . throughout the currency of rubber regulation."[46]

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[44]Bauer, Report on a Visit to the Rubber Growing Smallholdings of Malaya, p. 80.

[45]An appendix to this chapter provides figures and comments more extensively on the positive correlation between investment in rubber and employment increases.

[46]Bauer, The Rubber Industry, p. 114.

In spite of great difficulties in comparing the costs of estates and smallholders, there does seem to be consensus on some important aspects of the question of cost. The estates' cost structure, it is generally agreed, tended to be complicated while that of the smallholders was simple. This derived from the fact that the estates maintained an elaborate hierarchy and hired imported labour to perform the essentially simple routine tasks that have been described. The hierarchy of most European estates included under the Shareholders and Board of Directors a Secretarial Firm, Agency Firm, Visiting Agent, Visiting Engineer, Visiting Medical Officer, Visiting Accountant, the Manager of the estate and Assistant Manager(s) all of whom were Europeans. Under the Europeans' supervision were the conductor(s), estate clerks and dressers, estate contractors and their labourers, mandors (foremen), tappers, weeders and factory workers. The Planting Correspondent of the Straits Times reports in his column, "Malayan Planting Topics", that "salaries of Europeans and the estate staff usually account for about one third of the general charges."[47] In smallholder production, the "smallholder and his family are assisted at most by a few outside tappers who may, in some instances, be supervised by a resident foreman or caretaker."[48] The maintenance of this hierarchy not essential for the simple routine operations of rubber production involved a high overhead cost which was not offset by higher yields on the estates. On the contrary, when production was unrestricted it appears that "annual average

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[47]The Straits Times, April 5, 1935, p. 13.

[48]Bauer, Report on a Visit to the Rubber Growing Smallholdings of Malaya, p. 80.

yields per mature acre on Malayan smallholdings were 12 to 30% higher than on estates."[49]

Though the researcher rightly continues to be suspicious of purportedly exact cost and yield figures, the discussion up to this point makes possible some general conclusions. The drawing of these conclusions will be aided by examing the cost formula devised by Soliva and his estimates of differences in cost between estates and smallholdings.

Soliva begins by providing figures on the cost of bringing one acre into bearing. It would appear that even in getting acreage into production, the stronger position of the smallholder is already apparent. The table on page 73 reproduces Soliva's 1929 calculations as well as that of a Mr. Figart, an American expert, whose 1922 figures were published by the U.S. Department of Commerce. The figures are based on 1928-29 prices. Soliva's figure of "$450 to $500 per acre" to establish a "first class budded estate" on virgin forested land, he concedes, "might easily be increased or decreased by $50 per acre according to the nature and location of the estate."[50] A sizeable part of the $100 difference between Figart's and Soliva's figures can be explained by several factors. Figart includes $80 per acre for stumping whereas Soliva does not-- though Soliva includes $20 for bud-grafting not included by Figart. Also, Figart's calculations were probably based on American plantations operating in "Sumatra where they generally have large overhead expenses."[51]

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[49] Ibid.

[50] Ibid., p. 37.

[51] Ibid , p. 35.

TABLE VIII[52]

COST OF BRINGING ONE ACRE INTO BEARING
(Heavy jungle)

	From M.Figart (1922)		Direct Estimate 1929	
	Cost in S $ per acre	Cost in Fl. per hectare	Cost in S $ per acre	Cost in Fl. per hectare
Preliminary expenses roads, etc.	12	42	10	35
Felling, burning, etc.	52	182	55	192
Stumping	80	280	--	--
Terraces, drains, etc.	30	105	30	105
Planting	17	60	10	35
Budgrafting & cover crops	--	--	40	140
	191	669	145	507
Upkeep 1st year	12	42	10	35
2nd "	20	70	20	70
3rd "	20	70	15	52
4th "	15	53	15	52
5th "	15	53	15	52
6th "	15	52	10	36
	-- 97	-- 340	-- 85	-- 297
Sundries	7	24	10	35
Buildings (bungalows, coolie lines, etc.)	30	105	30	105
Factory	20	70	20	70
General Expenses--				
Supervision	130	455	90	316
Coolies	60	210	60	210
Miscellaneous	25	87	25	87
	-- 215	-- 752	-- 175	-- 613
	560	1,960	465	1,627
Purchase of land	40	140	35	123
	St. $600	Fl. 2,100	St. $500	Fl. 1,750

[52]Soliva, op. cit., p. 36.

It seems reasonably safe to accept the figures as accurate representation of the cost of bringing estate acreage into bearing in view of the corroboration that is available. Mr. Figart found, "by going through balance sheets of old estates, . . . capitalization averaging £55 or $470 per acre." Soliva found that "according tc prospectuses of two serious companies recently floated, $450 to $500 per acre (between £53 and £59 per acre) should be required."[53] These figures may be compared to the lower cost of "opening" smallholders' rubber acreage. Bauer estimated that an opening "with outside labour" cost about $40-50 per acre (£6-£7).[54] Bauer offers no figures on the cost of opening acreage with the smallholders' own labour. This too would certainly be below the figures given for estates as the smallholders did not have expenses for "Buildings" (bungalows, coolie lines, etc) and "Factory General Expenses" and generally minimized the expenses for stumping, terraces, drains, etc.[55]

Already enjoying lower opening costs, the cost advantage of the smallholder continues in actual rubber production. This will be shown by examining Soliva's rather complicated formula for calculating the cost of production of one pound of rubber. The formula is $C = \frac{W}{M} + \frac{u + g}{N} + S$. In calculating f.o.b. cost (C), W represents

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[53] Ibid., p. 37.

[54] Bauer, Report on a Visit to the Rubber Growing Smallholdings of Malaya, p. 72. See for more detail.

[55] Also see the figures compiled by Drabble, (thesis), op. cit., and the extensive comment on those figures in the appendix to this chapter. Drabble's figures are for an earlier period and are somewhat lower than Soliva's and Figart's. They are however still considerably higher than the figures on the opening of smallholder rubber.

the "average daily wage of a coolie" and "includes the expense for collecting latex from the trees and carrying it to the estate factory." M stands for the number of kilos collected daily by one labourer. u represents cost per hectare of upkeep.[56] g represents general expenses which "mainly consist of" salaries of European staff (including travel and leave pay), extra charges for labour (recruiting, food supply, medical assistance, etc.), upkeep of buildings and machinery, taxes (quit rent, etc.), miscellaneous office expenditure and sundries. u and g are generally estimated per hectare. With N representing production (in kilos) per hectare, the cost of u and g per kilo ($\frac{u + g}{N}$) may be calculated. S represents the cost of turning latex into sheet or crepe (i.e. costs in the factory) packing it, transporting it to the port of shipment and, if any, the export duty. [57]

It should, perhaps, be reiterated that our concern is more with drawing general conclusions about cost by examining what items go into the formula rather than with the magnitude of the various items. The important thing is that the estates faced many items of cost that the smallholders did not. To aid in understanding Soliva's calculations, the table on page 77 converting the weights, measures and currencies

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[56]This consists primarily of weeding or cultivating a cover crop. Estates generally practiced clean weeding whereas smallholders did not. Clean weeding, even though an item of expense to estates, actually resulted in diminished yields due to soil erosion. This in turn led to additional expense for bunds and terraces designed to check further erosion. Terraces (and presumably bunds) appeared, as they should, as a capital item. Maintenance of terraces, bunds and drains is included in u.

[57]Quotes and description of cost items are from Soliva, op. cit., p. 106.

is provided.[58]

Soliva suggests that the somewhat more complicated calculation of all-in-cost is to some extent arbitrary and that it varies with different companies. He suggests that, in addition to the costs already included, all-in-cost should include freight to and selling charges in Europe. "They will be called f per kilo, say 7 cents." [59]

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[58]Soliva, op. cit., pp. 106-107 calculates f.o.b. cost based on the assumptions of W = 50 cents, M = 4.2 kilos, u = 4000 cents (Fl.), g = 11,400 cents, N = 440 Kg. and S = 10 cents per kilo.

Thus $C = \frac{50}{4.2} + \frac{4,000}{440} + \frac{11,400}{440} + 10 = 12 + 9 + 26 + 10 = 57$ Fl. cents.

Whereas all of Soliva's cost calculations are made in terms of florin cents per kilogram of rubber, the other data available on rubber costs are expressed in terms of £.S.d. per pound of rubber. To make the data comparable, florin cents per kilogram is converted to pence (d.) per pound with one florin per kilogram of rubber converting to 9d. per pound of rubber. Thus, for example, a cost of .57 florin cents per kilogram = .57 times 9d. or 5.13d. per pound of rubber.

[59]Ibid.

WEIGHTS, MEASURES AND CURRENCIES

WEIGHTS AND MEASURES

1 pound (lb.)	= .45	kilogram (kilo. or kg.)
1 acre	= .4	hectare (ha.)
1 pound per acre	= 1.1	kilogram per hectare

1 kilogram	= 2.2	pounds
1 hectare	= 2.5	acres
1 kilo. per hectare	= .9	pound per acre

CURRENCIES

BRITISH MALAYA--

1 Straits dollar (Str. $)	= 2s. 4d. = U.S. $ 56 = Fr. Fr. 14
1 Sterling pound	= Str. $8.57

DUTCH EAST INDIES--

1 Florin or Guilder	= 1s. 8d. = U.S. $.40 = Fr. Fr. 10
1 Sterling pound	= Fl. 12

CEYLON

1 Rupee (Rs.)	= 1s. 6d. = U.S. $.36 = Fr. Fr. 9
1 Sterling pound	= Rs. 13.3

Str. $1 per acre	= Fl. 3.5 per hectare = Fr. Fr. 35 p. ha
Stg. £ per acre	= St. $8.5 per acre = Fl. 30 per hectare

Str. $ cent 1 per pound	= Fl .cents 3 per kilo. = Fr. centimes 30 per kilo.
Id. per pound	= St. $ cents 3.6 per pound = Fl. cents 11 per kilo.

December, 1930

Source: R. Soliva, An Economic View of Rubber Planting (Singapore: Kelly and Walsh, Ltd., 1930), p. 4.

Also included in all-in-cost is amortization of buildings, machinery and plantations. If the percentage of the capital allowed for depreciation, every year, is k and the invested capital per hectare is A, the allowance per hectare works out at k x A and per kilo of rubber at $\frac{k \times A}{N}$, N being the yield per hectare. Thus if k = 5% and A = 1300 Fl., the allowance should be per hectare 0.05 x 1300 = 65 Fl. or 6500 cents, and per kilo $\frac{6500}{440}$ = 15 cents.

Another item to be included in all-in-cost is directors' fees and bonuses to staff. Soliva maintains that these can not be set independently of the rubber price but inclusion of the rubber price, which of course changes frequently, "would . . . lead to too complex a formula." Soliva goes on, for unexplained reasons, to include fees and bonuses as an estimated percentage, b, of the capital per hectare, A. If A = 1300 Fl. and b = 2%, the charge per hectare would be .02 x 1300 = 2600 cents and per kilo $\frac{2600}{440}$ = 6 cents.

Income tax is also included in all-in-cost at i% of the capital per hectare, A, yielding the formula of A x i for the expense per hectare and $\frac{A \times i}{N}$ per kilo. If i = 2% and A = 1300 Fl., the charge per hectare would be 2600 cents and per kilo $\frac{2600}{440}$ = 6 cents.

Though Soliva notes that "dividends cannot regularly be included in the cost of production," he includes them on the reasoning that sufficient dividends must be paid "to induce plantations to be kept running and . . . to induce fresh capital to be invested in rubber estates."[60] He calls this dividend d. The charge for dividend per hectare is A x d

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[60] Ibid., p. 108.

and per kilo $\frac{A \times d}{N}$. Assuming A = 1300 Fl. and d = 12%, the charge per hectare would be 15,600 cents and per kilo $\frac{15,600}{440}$ = 35 cents.

A factor called z is included in the formula in order to make possible the comparison of production costs of producers turning out different qualities of rubber. If the estate turns out a product which may be sold at a higher price than the standard quality, z will be deducted from the cost of production; on the other hand, if the estate produces a lower quality (and Soliva's assumption is that Chinese and Malays turn out a product of lower quality), z should be added to the cost of production.[61] Thus Soliva's formula for all-in-costs can be reduced to the following:

$$C = \frac{w}{M} + \frac{u + g}{N} + s + f + \frac{A}{N}(k + b + i + d) + z$$

$$C = \frac{50}{4.2} + \frac{4,000}{440} + \frac{11,400}{440} + 10 + 7 + \frac{130,000}{440}(.05 + .02 + .02 + .12)$$

$$C = 12 + 9 + 26 + 10 + 7 + 15 + 6 + 6 + 35$$

C = 126 cents or Fl. 1.26.[62]

Based on the formulas discussed here and the division of rubber producers into three groups, European Estates, Chinese Estates and Native Estates, Soliva attempts to "calculate what might be termed a 'standard cost' of production for each."[63] The highest estimated cost is 11d

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[61] Ibid., p. 109. See also the earlier comment by the Planting Correspondent of the Straits Times regarding the minimal difference between the quality of estate and smallholder rubber.

[62] Ibid. With one florin equal to 9d, 1.26 Fl. converts to 11.34d.

[63] Ibid., p. 104.

(123 cents) for a European Estate yielding 440 kilograms per hectare. For a manured European Estate yielding 600 kilograms per hectare, the estimated cost is 8 3/4d (96 cents). The estimated cost for a Chinese Estate, on which a coolie is hired at 90 Fl. cents a day, and yielding 360 kilograms per hectare, is 7d (77.4 cents). The estimated cost of a small Chinese Estate, on which the owner himself taps and "requires 60 cents as minimum wage" and yield equals 600 to 700 kilograms per hectare, is 4d. The estimated cost of a Malay Estate in the D.E.I., tapped by the owner and yielding 600 to 700 kilograms per hectare, is 4 1/2d. Soliva's calculations are reproduced in an appendix to this chapter.

The criticism that can be made of Soliva's calculation's are obviously many. The assumptions made regarding yield, the level of wages, the allowance for upkeep, the rate of amortization and a number of other factors directly affect the cost result. Also, of course, many of these factors are constantly changing. The inclusion of several items in all-in-cost (e.g., dividends) seems open to serious question and results in a higher all-in-cost than is reported by other sources. Yet even with these criticsims, Soliva's general magnitudes do not seem out of line. For example, The Economist of 10th May, 1930 listed 103 rubber companies (virtually all larger units of the leading agency groups) and gave costs of operation for 1928-29. The arithmetic mean of these f.o.b. costs was 6.15d and the mean of the all-in-costs was 6.64d. The range of the f.o.b. costs was from 3.2d for Bekoh Consol Estate to 11.71d for Tambira Estate.[64]

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[64] The Economist, 10 May, 1930. This list is reproduced in an appendix to this chapter. Also, see the costs compiled by Drabble, Rubber in Malaya, op. cit., Appendix III, p. 227. Drabble's estimates, based on "Rubber Producing Companies," 1917 and 1923 editions, range from 5¾d. to 2/5 over the 1913-22 period.

Perusal of the Straits Times of the period also provides interesting material on cost. In corroboration of earlier statements regarding the changeability of cost, United Temiang Rubber Estates may be cited. It was reported at the twenty-second annual general meeting that "the equipment of a rubber plantation is now carried out on less costly lines than deemed necessary formerly . . . Our costs have been appreciably reduced. Taking 1927-28 costs at 100, those for 1930-31 were 49 and for 1931-32, 29 . . . I am glad to say that the estimates which we have approved for the current year show a further reduction of costs."[65] It is interesting to consider the following statements. A "well-known local broker" stated on June 11, 1930, that "the great majority of estates have production costs round about 19 cents" (Straits cents) or 5.32d.[66] According to the Mincing Lane correspondent of the Manchester Guardian Commercial " . . . there is not a single company in existence which can produce rubber without loss at a London price of 4d. per pound . . . A price of 4d. means not merely no dividends for shareholders but also the eventual bankruptcy of even the most efficient companies."[67] A week later, an article in the Rubber and Tea Quarterly states that "Direction, management and labour costs are being drastically curtailed and on some estates costs have been, and are being, reduced to a f.o.b. figure of 3d. or even less." The same article notes that " . . . about 10 percent of the European-owned estates in Malaya have been closed down."[68]

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[65] The Straits Times, January 18, 1933, p. 9.

[66] Ibid., June 11, 1930, p. 11.

[67] Ibid., December 12, 1930, p. 10.

[68] Ibid., December 20, 1930, p. 14. See also the account of the negotiations to sell Sekong Estate, Straits Times, January 13, 1933, p. 9, whose reported f.o.b. costs for 1932 were 2.07d. per pound.

Perhaps what is to be gleaned from these accounts is that it is difficult to be precise about costs in the 1930's-- though Soliva's figures seem plausible. It also seems that more important than actual figures is the general methodology used. It does provide us with a framework for comparing estates and smallholders and the insights the methodology affords are not changed by changes in the magnitudes. Particularly noteworthy in the Soliva formula is that all of the items in the numerator are costs of very great importance to the estates but of minimal importance to the smallholders.

Thus the collection of latex-- a simple and routine matter-- is performed by Tamil labourers under European supervision at considerable wage cost. This contrasts with the Malay smallholder who, with the aid of his family or occas ional hired tappers, does his own tapping.

Upkeep is another item of cost importance to the estates which did not exist for the smallholder. The clean weeding, it has been earlier noted, in fact caused soil erosion and diminished yields. The practice can be regarded as a reflection of the British colonial administrators and estate managers "ingrained bias in favour of neat, well-ordered Western-style plantations . . . as against the alien character of peasant smallholdings."[69] The Planting Correspondent of the Straits Times is instructive in this matter. "Many chairmen's speeches could be quoted testifying to the fact that the real assets of estates-- the rubber trees-- have actually improved since certain expensive upkeep practices formally regarded as essential were given up."[70]

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[69]Martin Rudner, "The State of Peasant Innovation in Rural Development: The Case of Malaysian Rubber," Asian and African Studies, Vol. 6, 1970, (Jerusalem), p. 78.

[70]The Straits Times, April 5, 1935, p. 13.

The general expenses item is a most significant item that illustrates well the radically different approach of estates and smallholdings to the simple processes of rubber production. Included in the item are European staff salaries. "An estate of 2400-3000 acres would ordinarily employ one manager and three assistants which works out at one European for 600-800 acres."[71] Again, this cost item is not offset by higher yields. The superfluity of such supervisory staff was demonstrated by the wholesale dismissals of European staff that took place in the early thirties.[72] Other items of upkeep were excessive for estates while absent or at least very modest for smallholders. These include upkeep of wooden houses for European staff and "lines" or barracks for Tamil labourers. The upkeep of the estates machinery-- cars, trucks, sheeting batteries for the production of sheet rubber, lighting equipment for staff quarters and small engines of various sorts-- was also a sizeable cost item. Only in the s item, the cost of turning latex into sheet or crepe, did the smallholders' cost advantage seem to be negligible.

The line of reasoning followed in the discussion of f.o.b. costs up to this point seems equally applicable in evaluating all-in-cost-- however much one might dispute individual items in the formula. The major items included in this broader cost concept-- amortization, directors' fees and bonus to staff, income tax and dividends-- are all items

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[71] Soliva, op. cit., p. 22.

[72] See Bauer, The Rubber Industry. Also see the column entitled "Victims of the Slump" which began to appear regularly in the Straits Times in 1930. Many unemployed Europeans, as well as Asiatics, sought work through the column. More will be said about unemployment in Chapter X.

that were either present for estates and absent for smallholdings or were larger items for estates (e.g., amortization) because of differences in production methods.

The conclusion to which this discussion points, then seems ineluctably to be that the smallholders were the lower cost sector. In support of this contention, buttressed in this chapter with the available data, one final observation of the Straits Times Planting Correspondent may be quoted. "In discussing estate expenditures the position of the native, who can produce half the world's needs of rubber is too often overlooked. Unpleasant as may be the comparison, it is against the costs of native-produced rubber that estate costs must be rightly measured, not by the old privileged standards.[73] The fact of lower smallholder costs not withstanding, the interwar period saw Malaya's rubber industry under restrictive regulations heavily weighted in favour of the large estates. The potential of rubber smallholding was not capitalized on but rather "colonial policy . . . stifled peasant innovation in pursuit of its custodial goals."[74] The implications of these policies for economic development were profound indeed and they will be further examined in subsequent pages.

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[73] The Straits Times, April 5, 1935, p. 13.

[74] Rudner, op. cit., p. 79.

APPENDIX

Estimated Cost of Production of a European Estate Yielding 440 kg. per ha., on the basis of 1929 Costs in Florin Cents per Kilo.[75]

	Per hectare in Fl. cents		Per kilo. in Fl. cents.
Upkeep of fields (1 coolie @ 160 Fl. for 5 hectares) ..	u = 3200	$\frac{u}{N}$ = 3200 =	7.2
Drop, supposing a coolie collects M = 4.2 kilo. a day and is paid 50 cents a day ..		$\frac{w}{M}$ = $\frac{50}{4.2}$ =	11.8
Total			19.0
Manufacturing, packing and shipping fob.			10.0
Total			29.0
General Expenses:--			
One European @ 7000 Fl. for 250 ha. ..	2800	$\frac{2800}{440}$ = 6.3	
Extra labour charges (45% of wages) ..	4000	$\frac{4000}{440}$ = 9.1	
Upkeep of buildings, taxes, office exps. ..	4200	$\frac{4200}{440}$ = 9.6	
	g = 11000	$\frac{g}{N}$ = 25 =	25.0
Total (fob. cost) ..			54.0
Freight to and selling charges in Europs.		s =	7.0
Total (cif. London Cost ..			61.0
Bonus to staff 2% on capital A = 1300 Fl. (rubber @ 11d.)	Ab = 2600	$\frac{Ab}{N}$ = $\frac{2600}{440}$ =	6.0
Total ..			67.0
Income Tax 2% on capital A = 1300 Fl. (rubber @ 11d.) ..	Ai = 2600	$\frac{Ai}{N}$ = $\frac{2600}{440}$ =	6.0
Total ..			73.0
Depreciation of 5% on capital A = 1300 Fl.	Ak = 6500	$\frac{Ak}{N}$ = $\frac{6500}{440}$ =	15.0
Total ..			88.0
Required for a dividend of 12% on A = 1300 Fl. ..	Ad = 15600	$\frac{Ad}{N}$ = $\frac{15600}{440}$ =	35.0
TOTAL		Fl. cts.	12.0

$$c = \frac{50}{4.2} + \frac{3200}{440} + 10 + \frac{11000}{440} + 7 + \frac{2600}{440} + \frac{2600}{440} + \frac{6500}{440} + \frac{15600}{440}$$

$$c = 11.8 + 7.2 + 10 + 25 + 7 + 6 + 6 + 15 + 35 = 123 \text{ cents (11d.)}$$

[75] R. Soliva, An Economic View of Rubber Planting, (Singapore: Kelly and Walsh, Ltd., 1930), p. 125.

Estimated Cost of Production of a European Estate yielding 600 kg. per hectare and manured, based on 1929 Costs in Florin Cents per Kilo.[76]

	Per hectare in Fl. cents.	Per kilo. in Fl. cents.
Upkeep of fields (1 coolie @ 160 Fl. for 5 ha.	u = 3200	$\frac{u}{N} = \frac{3200}{600} = 5.3$
Crop, supposing a coolie collects M = 5 kg. a day and is paid 50 cents		$\frac{w}{N} = \frac{50}{5} = 10.0$
Total		15.3
Manufacturing, packing and shipping fob.		10.0
Total		25.3
General Expenses:--		
1 European @ 7000 fl. for 250 ha.	2800	
Extra Labour charges (45% of wages)	4000	
Upkeep, taxes, office expenses, etc.	4200	
	g = 11000	$\frac{g}{N} = \frac{11000}{600} = 18.3$
Total (fob. cost)		43.6
Freight to and selling charges in Europe		s = 7.0
Total (London cif. cost)		50.6
Bonus to staff 2% on capital A = 1300 Fl (rubber @ 9d.)	Ab = 2600	$\frac{Ab}{N} = \frac{2600}{600} = 4.3$
Total		54.9
Income Tax 2% on capital A = 1300 Fl. (rubber @ 9d.)	Ai = 2600	$\frac{Ai}{N} = \frac{2600}{600} = 4.3$
Total		59.2
Depreciation of 5% on capital A=1300 Fl. (rubber @ 9d.)	Ak = 6500	$\frac{Ak}{N} = \frac{6500}{600} = 10.8$
Total		70.0
Required for a dividend @ 12% on A 1300 Fl.	Ad =15600	$\frac{Ad}{N} = \frac{15600}{600} = 26.0$
TOTAL		Fl. cts. 96.0

$$c = \frac{3200}{600} + \frac{50}{5} + \frac{11000}{600} + 10 + 7 + \frac{2600}{600} + \frac{2600}{600} + \frac{6500}{600} + \frac{15600}{600}$$

$$c = 5.3 + 10 + 18.3 + 10 + 7 + 4.3 + 4.3 + 10.8 + 26 = 96.0 \text{ cts } (8\ 3/4\text{d.})$$

[76] Ibid., p. 127.

Estimated Cost of Production of a Chinese Estate yielding 360 kg. per ha., on the basis of 1929 Costs in Florin Cents per Kilo.[77]

	Per hectare in Fl. cents.	Per kilo. in Fl. cents.
Upkeep of fields (1 coolie @ 300 Fl. for 25 ha.)	u = 1200	$\frac{u}{N} = \frac{1200}{360} =$ 3.3
Crop, supposing a coolie collects M = 3 kg. a day and is paid 90 Fl. cts. a day		$\frac{w}{N} = \frac{90}{3.0} =$ 30.0
Total		33.3
Manufacturing, packing and shipping fob. and brokerages		s = 8.0
Total		41.3
General expenses:-- Overseer @ 700 Fl. for 100 ha.	700	$\frac{700}{360}$ =1.9
Extra labour charges: Upkeep of buildings, machinery, taxes, etc.	1300	$\frac{1300}{360}$ =3.6
	g = 2000	$\frac{g}{N} = \frac{2000}{360}$ =5.5 5.5
Total (fob. cost)		46.8
Freight to and selling charges in Europe		s = 8.0
Total (London cif .cost)		54.8
Difference from price of standard		z = 6.0
Total		60.8
Required for a dividend of 20% on capital A = 300 Fl. per ha.	Ad = 6000	$\frac{Ad}{N} = \frac{60000}{360} =$ 16.6
TOTAL		77.4

$$c = \frac{90}{3} + \frac{1200}{360} + \frac{2000}{360} + 8 + 8 + 6 + \frac{6000}{360}$$

$$c = 30 + 3.3 + 5.5 + 8 + 8 + 6 + 16.6 = 77.4 \text{ cents (7d.)}$$

[77] Ibid., p. 131.

Approximate Estimated Cost of Production of a small Chinese Estate in British Malaya yielding 6/700 kg. per hectare on the basis of 1929 costs, tapped by the owner, in Florin cents per kilo.[78]

		Per Kilo. In Fl. Cents.
Crop. Supposing a Chinese coolie collects M = 2.5 kg. a day and requires 60 cents as minimum wage	$\frac{W}{M} = \frac{60}{2.5}$ =	24.0
Shipping to Singapore, manufacturing, milling and packing	s =	6.0
Total		30.0
General Expenses: Export Tax 5% (rubber at 4 1/2d.)		0.8
Total (fob. cost)		30.8
Freight to and selling charges in Europe		8.0
Total (London cost)		38.8
Difference from standard price	z =	4.2
Grand Total		43.0 (4d.)

$C = \frac{60}{2.5} + .8 + 6 + 8 + 4.2$

$C = 24 + .8 + 6 + 8 + 4.2 = 43$ (4d.)

[78] Ibid., p. 133.

Approximate Estimated Cost of Production of a Malay Estate in the D.E.I., yielding 6/700 kg. per hectare on the basis of 1929 costs, tapped by the owner, in Florin cents per kilo.[79]

		Per Kilo. In Fl. Cents.
Crop. Supposing a Native collects M = 1.8 kg. a day and requires 40 cents as minimum wage	$\frac{w}{M} = \frac{40}{1.8}$	= 22.2
Shipping to Singapore, manufacturing, milling and packing	s	= 12.0
Total		34.2
General Expenses. Tax 5% in D.E.I. (rubber at 4 1/2d.)		1.1
Total (f.o.b. cost)		35.3
Freight to and selling charges in Europe		8.0
Total (London cost)		43.3
Difference from standard prices	z	= 4.0
Grand total		47.3 (4 1/2d)

$$c = \frac{40}{1.8} + 1.1 + 12 + 8 + 4$$

$$c = 22.2 + 1.1 + 12 + 8 + 6 + 4 = 47.3 \text{ (4 1/2d.)}$$

[79] Ibid., p. 134.

Rubber Company Statistics[80]

	Cost f.o.b.	Cost all in.
Allied Sumatra	0/6·40	---
Ampat	0/6·01	---
Anglo-Dutch	0/6·99	---
Anglo-Java	---	---
Anglo-Johore	0/10½	---
Anglo-Malay	0/8·50	0/9·96
Ayer Kuning	0/5	0/5·88
Badek	0/6·42	---
Bah Lias	0/8·73	---
Bandar Sumatra	0/7·70	---
Banteng (Selangor)	---	0/6·11
Batang Consol	0/5·55	0/7·31
Batu Tiga	0/7·12	0/8·67
Bekoh Consol	0/3·2	0/4·81
Bertam Cons.	0/4·55	0/5·78
Besoeki	0/6·32	---
Bikam	0/7·61	0/9·7
Biting	0/5·49	---
Bradwall	0/5·73	0/7·23
Brooklands	0/7·14	---
Broome	0/4·75	---
Bukit Kajang	0/5·93	0/6·60
Bukit Mertajam	0/5·5	0/6·75
Bukit Selangor	0/7·27	0/8·36
Bukit Sembawang	0/7·04	---
Castlefield	0/5·14	0/6·39
Ceylon (Para)	0/6·16	0/7·49
Ceylon T. Plant., Ord.	0/8·18	---
Chembong (1920)	0/6·93	0/8·89
Chersonese (F.M.S.)	0/6·43	---
Cheviot	0/4·96	0/5·30
Cicely Ord.	0/5·30	---
Consolidated Malay	---	0/8·29
Dennistown	0/5·37	0/6·34
Djember	---	---
Eastern Produce Ord.	---	---
F.M.S. Rubber Pintrs.	0/6·01	---
Gadjah	0/5·74	0/7·14
General Ceylon	---	---
Glen Bervie	---	0/6·32
Glenshiel (1919)	per lb.	0/5·26
Golconda Malay	0/5·31	0/5·67
Golden Hope	0/8·05	---
Grand Central	0/7·02	0/9·48
Hewagam	0/7	---
Highlands & Lowlands	0/5·15	0/6·07
Inch Kenneth	0/7·41	0/8·53
Insulinde	0/6·68	0/6·45
Java Amalgamated	---	---
Java Rubber Plant.	0/6·68	---

[80]The Economist, May 10, 1930.

Rubber Company Statistics (cont.)

	Cost f.o.b.	Cost all in.
Java United	0/9·3	---
Jeram	0/5·58	---
Jong-Landor	0/5·40	0/6·83
K.M.S.	0/5·87	0/6·26
Kali Glagah	0/4 apx.	---
Kali Java	---	---
Kampong Kuantan	0/5	0/6·60
Kamuning Rubber & Tin	---	0/5·87
Kawie (Java)	---	---
Kepitigalia	0/8·09	---
Kepong (Malay)	---	---
Kinta Kellas	0/5·98	---
Klanang Produce	0/5·21	---
Kuala Selangor	---	0/5·90
Labu (F.M.S.)	0/5·07	0/5·38
Lanadron	0/7·69	---
Langen	0/6·07	---
Langkat Sumatra	0/8·18	---
Langkon N. Borneo	---	0/9·80
Laras	---	---
Ledbury	0/8·01	---
Linggi Plant. Ord.	0/6·32	---
London Asiatic	---	---
Lamut	0/4·70	0/5·72
Malacca Ordinary	0/6·83	0/7·33
Malayalam Plan.	0/7·15	---
Mendaris (Sumatra)	0/7·07	---
Merlimau Pegoh	---	0/6·62
Mount Austin	per lb.	0/4·11
Nagolle	---	---
Nordanal (Johore)	per lb.	0/4·84
North Hummock	0/6·15	0/6·88
Pataling	---	---
Perak Rubber Plant.	0/5	---
Pernambang	0/8·86	---
Port Dickson	0/6·34	0/6·75
Prye Rubber & c.	---	---
Rangoon Para	---	0/9·33
Rani (Travancore)	0/7·67	---
Rembau Jelei	0/7·67	---
Rubana	per lb.	0/6·70
R. Estates of Johore	---	---
R. Estates of Krian	0/5·54	---
Sampang	---	0/7½
Sapong Rubber, & c.	0/10·37	---
Seafield	0/4·77	0/5·94
Seaport	0/6·20	---
Sedenak	0/5·60	---

Rubber Company Statistics (cont.)

	Cost f.o.b.	Cost all in.
Selangor	0/5·80	0/6·99
Sempah	0/9·60	---
Sendayan	---	---
Sennah	---	---
Serdang Central	0/8·48	---
Seremban (1920)	0/7·23	---
Sialang	0/7·78	---
Singapore Para	0/6·92	0/7·46
Straits Rubber (1919)	per lb.	0/6·61
Sumatra Consolidated	0/5·67	---
Sumatra Para	0/5·12	---
Sungei Choh (1920)	0/4·65	---
Sungei Salak	0/6·52	0/7·20
Sungkai-Chumor	0/6·52	0/7·20
Taiping	0/4·44	---
Tambira	0/11·71	---
Tandjong	0/7·88	0/10·13
Tebrau	0/6·08	0/7·08
Telogorodjo	0/7	---
Tremelbye	0/5·13	0/7·45
United Serdang	---	0/5·5
United Sua Betong	0/6·52	0/6·75
United Sumatra	0/5·88	---
United Temiang	0/7·44	0/7·83
Waterfall	---	0/8·32
Way Halim	0/6·40	---

Average Cost of Production of Rubber Companies Furnishing Returns to the Rubber Growers' Association, 1929-33[81]

(Pence per lb.)

Financial year ending in	All-in cost		F.o.b. cost		Average London price of rubber for corresponding financial year	
	Pence	Index°	Pence	Index°	Pence	Index°
1929						
1st quarter	6·58	100	5·71	100	9·54	100
2nd "	6·31	100	5·57	100	9·94	100
3rd "	5·88	100	5·26	100	10·29	100
4th "	5·93	100	5·29	100	10·26	100
1930						
1st quarter	6·32	96	5·45	97	9·37	98
2nd "	6·51	103	5·83	105	8·41	84
3rd "	5·70	97	5·12	98	6·97	68
4th "	5·35	90	4·72	89	5·91	58
1931						
1st quarter	5·05	77	4·40	77	4·97	52
2nd "	4·41	69	3·84	69	4·06	41
3rd "	3·93	67	3·38	64	3·48	34
4th "	3·48	59	3·02	57	3·17	31
1932						
1st quarter	3·09	47	2·71	47	2·69	28
2nd "	3·02	48	2·61	47	2·38	24
3rd "	3·13	53	2·63	50	2·31	22
4th "	2·78	47	2·34	44	2·34	23
1933						
1st quarter	2·34	36	Not available		2·22	23
2nd "	2·52	40	"		2·50	25
3rd "	2·89	49	"		2·84	28
4th "	2·95	50	"		3·25	32

°The index figures are expressed as percentages of costs for the financial years ending in the corresponding quarter of 1929.

[81] P.T. Bauer, The Rubber Industry (London: University of London Press, 1948), p. 365.

London Yearly Average Natural Rubber Prices[82]

1900-40

Year	s.	d.	Year	s.	d.
1901	2	3.00	1921		9.56
1902	2	3.00	1922		9.31
1903	2	6.00	1923	1	3.31
1904	2	9.00	1924	1	7.88
1905	3	0.00	1925	2	11.06
1906	5	10.50	1926	1	11.75
1907	4	7.50	1927	1	6.88
1908	4	4.75	1928		10.75
1909	7	1.00	1929		10.25
1910	8	9.00	1930		5.94
Average	4	4.18	Average	1	3.87
1911	5	5.50	1931		3.50
1912	4	9.00	1932		2.31
1913	3	0.25	1933		3.25
1914	2	3.50	1934		6.25
1915	2	6.00	1935		6.00
1916	2	10.25	1936		7.75
1917	2	9.75	1937		9.50
1918	2	2.75	1938		7.22
1919	2	0.75	1939		9.00
1920	1	10.50	1940	1	0.06
Average	2	11.83	Average		4.16

Source and Note.
a. International Rubber Study Group, Rubber Statistical Bulletin
b. Average import prices up to and including 1905. Since 1906, prices are those of standard rubber ribbed smoked sheets.

[82]Adapted from Lim Chong-Yah, Economic Development of Modern Malaya (London: Oxford University Press, 1967), p. 323.

Malayan Rubber Estate and Small-holding Acreage and Production 1906-38[83]

	Planted Acreage (1,000 acres)			Production (1,000 tons)			Estate	
	Estate	Small-holding	Total	Estate	Small-holding	Total	% of Total Acreage	% of Total Production
1906						0.4		
1907						0.9		
1908						1.4		
1909						2.7		
1910						5.7		
1911						10.9		
1912						20.5		
1913						33.2		
1914						46.4		
1915						70.5		
1916						97.8		
1917						134.8		
1918						107.7		
1919						199.5		
1920						174.3		
1921						151.0		
1922	1,410	918	2,328			212.4	61	n.a.
1923	1,432	939	2,371			183.8	60	n.a.
1924	1,455	952	2,407			152.3	60	n.a.
1925	1,480	975	2,455			210.0	60	n.a.
1926	1,523	992	2,600			286.0	59	n.a.
1927	1,624	976	2,710			242.0	60	n.a.
1928	1,696	1,014	2,944			299.0	58	n.a.
1929	1,820	1,124	2,971	245	212	457.0	61	54
1930	1,876	1,173	3,049	237	215	452.0	62	52
1931	1,934	1,218	3,152	239.4	195.5	434.9	61	55
1932	1,939	1,276	3,215	240.1	177.0	417.1	60	58
1933	1,947	1,261	3,208	241.0	218.8	459.8	61	52
1934	2,010	1,272	3,282	262.4	217.0	479.4	61	55
1935	2,016	1,163	3,179	242.3	134.5	376.8	63	64
1936	2,015	1,205	3,220	232.6	130.9	363.5	63	64
1927	2,021	1,268	3,289	313.9	187.2	501.1	61	63
1938	2,026	1.254	3,280	245.7	113.8	359.5	62	68

[83] Ibid., p. 328.

Dividend Record of Sterling Rubber Companies in Malaya
1910-22[84]

	Number of Companies	Average Dividend	Number Not Paying Dividends
1910*	76	18.00%	35
1911	115	14.00	52
1912	129	17.00	41
1913	136	10.30	57
1914	138	11.25	43
1915	138	20.00	22
1916	138	24.18	11
1917	138	16.90	18
1918	138	12.34	24
1919	138	22.36	8
1920	138	3.23	77
1921	138	2.14	100
1922	138	5.21	39

Average annual dividend for thirteen years, 13.6%. These figures fail to take into consideration net losses, so exaggerate somewhat the yield from the average company.

*Financial years in many cases end in the spring of the following year.

[84]Charles R. Whittlesey, Governmental Control of Crude Rubber: The Stevenson Plan (Princeton: Princeton University Press, 1931), p. 75.

Initial Employment Repercussions of Investment in Tin and Rubber

It has been suggested in the analytical framework of this study that numerous employment repercussions derive from the establishment of capital intensive export industries (e.g., most mining) and labour intensive export industries(e.g., most plantation agriculture). These repercussions will be traced-- to the extent possible-- in later chapters. The present appendix is concerned to show the more immediate employment repercussions of investment in tin and rubber. Though there is considerable difficulty in rendering the data comparable and in precise quantification, it may generally be shown that investment in tin was labour-displacing whereas investment in rubber created employment.

Investment in tin was especially heavy in three periods. The first period was around 1906 with the introduction of gravel-pump mining. The second period, 1911-1913, coincided with the introduction of dredging. The third period, 1919-1920, was "chiefly for the development of dredging, expansion of which was temporarily interrupted by the First World War."[85]

Yip provides the best available figures on investment in tin mines (from the Royal Institute of International Affairs, "Some statistics on external capital invested in Ceylon, Malaya and the British West Indies"): (Table on page 99)

In addition to the introduction of western machinery as a factor influencing British investment, it should be noted that "periods of large investment generally followed periods of high tin prices while

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[85] Yip Yat Hoong, The Development of the Tin Mining Industry of Malaya (Singapore: University of Malaya Press, 1969), p. 142.

Issued Capital (£'000)[86]

Year	Total in each year	Total from 1900	Year	Total in each year	Total from 1900
1900	60	60	1911	135	523
1901	--	60	1912	168	691
1902	11	71	1913	275	966
1903	14	85	1914	57	1023
1904	31	116	1915	11	1034
1905	--	116	1916	--	1034
1906	259	375	1917	--	1034
1907	13	388	1918	--	1034
1908	--	388	1919	177	1211
1909	--	388	1920	479	1690
1910	--	388			

periods of little or no investment coincided with periods of low tin prices."[87] In any case, the result of this investment in tin was generally to displace labour as revealed in the following table:

No. of Labourers Engaged in Mining[88]

1907	229,778	1917	123,340
1912	211,490	1918	144,621
1913	225,405	1919	113,107
1914	171,689	1920	89,557
1915	164,457	1921	86,339
1916	139,143	1922	82,195

[86] Ibid., p. 141. Several points should be made about the table. First, the table takes into account only the capital issued in London by British tin mining companies operating or having operated in Malaya. Thus it does not take into account re-invested profits of the companies. Second, the table includes only "sterling" tin mining companies-- those companies registered in the U.K. whose capital was denominated in sterling. It excludes "dollar" tin mining companies-- those companies registered in the F.M.S. or the S.S. whose capital was denominated in Malayan dollars. This represents an understatement since the capital of "dollar" companies came largely from the U.K. See Yip, p. 141 regarding these and other criticisms. Still the table does give a good indication of the trend of British investment in Malayan tin mining.

[87] Ibid., p. 142

[88] Calculated from the Report of the Department of Mines, 1909-22 and from R.N. Jackson, Immigrant Labour and the Development of Malaya 1786-1920 (Kuala Lumpur: Government Printing Office, 1961).

By contrast, investment in rubber was related to the extension of rubber acreage and this was generally employment creating. Again, comparability of rubber data with tin data and precise quantification (of, say, number of jobs created per £1000 invested in rubber) poses very considerable problems.

It has already been estimated that the cost of bringing one acre into bearing in the 1920's was about fifty to sixty pounds.[89] (This refers to estate acreage, of course, as smallholder acreage would scarcely seem relevant in this discussion of employment creation.) Multiplication of the change in estate acreage from year to year by the cost of bringing an acre into bearing would provide one measure of annual investment in rubber. Lim states that there were approximately 100,000 acres brought into cultivation per year for the first three decades of this century.[90]

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[89]Soliva, op. cit., estimated £58. The prospectuses of several companies suggest a cost of £53 to £59 per acre. Very extensive data are also provided in Drabble, The Planatation Rubber Industry in Malaya, (Thesis) op. cit. Drabble's figures are for a slightly earlier period and involve"very divergent estimates." Drabble suggests purchase prices per acre in 1909 ranging from £1 to over £30 and authorized capital per acre ranging from £1 to over £50, p. 109. Only three companies in Drabble's study provide figures on estimated cost for bringing rubber to maturity: Highlands and Lowlands Para Rubber, Ltd. (£18 per acre), Rubber Estates of Johore, Ltd. (£22 per acre), Malacca Rubber Plantations, Ltd. (£30 per acre). "For virtually the entire period" from the start of the industry to the early 1920's, "there was no consistent or uniform official policy in Malaya with regard to the collection and publication of statistics on the rubber industry . . ," p. 420. The existence of three separate political entities also adds to the difficulty.

[90]Lim, op. cit., p. 101.

Lim also provides the following figures for the 1920's:

Planted Acreage in Malaya[91]

Year	Thousands of acres	Year	Thousands of acres
1922	2,328	1927	2,710
1923	2,371	1928	2,944
1924	2,407	1929	2,971
1925	2,455	1930	3,049
1926	2,600		

Multiplying, say, £55 by, say, 100,000 indicates investment on the average of £5,500,000 per year in that period.[92]

Throughout the period of the early twentieth century with rising investment in rubber, the tendency has been for the estate labour force to rise as shown in the figures on page 102.

Thus, with some variation for individual years, there has generally been a positive correlation between investment in rubber and employment in rubber-- and especially so in the pre-1920 period of rapid growth before the introduction of rubber restriction. It should also be noted that there is a lag effect as regards the planting of rubber trees and the employment of tappers. Newly planted trees do not begin to yield latex until approximately six or seven years later, at which time the main employment impact is felt. A further complicating factor is that employment changes are also related to changes in the price of rubber. Thus it could be expected that for some years with positive investment, there would be declines in employment. Yet in general it must be concluded that positive investment resulted in positive changes in rubber employment.

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[91] See Ibid., p. 328 for more extensive figures.

[92] Obviously in any one year there might be considerable variation from this figure. This would occur if acreage opened up in the year were considerably above or below 100,000 acres (and the above figures indicate considerable variation from year to year) or if a lower cost figure, such as those reported in Drabble's thesis, op.cit., were used. It has to be admitted that these factors render this ex ercise of limited usefulness.

Federated Malay States Estate Labor Force,
Years Ending 1907-1938[93]

Year	Indians	Chinese	Javanese	Others	Total	No. of Estates
1907	43,824	5,348	6,029	2,872	58,073	287
1908	43,515	6,595	4,999	1,961	57,070	300
1909	55,732	12,402	6,170	2,778	77,524	n.a.
1910	n.a.	n.a.	n.a.	n.a.	128,446	n.a.
1911	109,633	31,460	12,795	12,127	166,015	711
1912	n.a.	n.a.	n.a.	n.a.	188,050	n.a.
1913	142,476	25,081	12,197	8,496	188,250	n.a.
1914	120,144	24,000	10,115	7,120	161,379	n.a.
1915	126,347	27,446	8,356	8,592	170,741	719
1916	138,295	42,831	7,485	7,496	196,123	797
1917	148,834	55,240	7,746	8,902	220,758	920
1918	139,480	46,372	8,249	7,821	201,964	1,003
1919	160,658	61,089	7,861	7,492	237,134	1,087
1920	160,966	40,866	8,918	5,808	216,588	1,105
1921	121,644	25,712	5,732	3,353	156,341	1,001
1922	122,589	27,575	4,906	3,724	158,794	1,052
1923	121,463	31,957	4,791	4,894	163,105	1,204
1924	119,242	30,884	4,516	4,715	159,357	1,068
1925	137,761	37,879	4,165	4,549	184,354	1,206
1926	176,114	61,064	4,760	4,822	246,760	1,403
1927	172,466	44,239	4,550	3,963	225,218	1,421
1928	162,460	50,647	5,149	4,788	223,044	1,509
1929	181,205	65,617	5,316	6,642	258,780	1,651
1930	132,745	30,860	3,665	2,411	169,681	1,757
1931	104,767	32,916	2,464	2,357	142,504	1,800
1932	90,003	31,349	1,920	2,328	125,600	1,912
1933	96,138	35,188	2,207	3,318	136,851	2,030
1934	119,443	40,305	2,521	4,153	166,422	2,178
1935	118,591	29,950	1,941	2,658	153,140	2,345
1936	123,595	30,760	1,924	2,979	159,258	2,419
1937	155,725	37,200	2,371	3,823	199,119	2,519
1938	137,353	28,925	1,762	2,892	170,932	2,388

Source: Federated Malay States, Department of Agriculture, Annual Report, 1907-1912; Federated Malay States, Labour Department, Annual Report, 1913-1933; Malaya, Labour Department, Annual Report, 1934-1938.

[93]Parmer, op. cit., p. 273.

Chapter IV

IMPORTATION OF LABOUR

It was posited in the earlier established analytical framework that generally the types of commodities developed as export lines in underdeveloped countries are those highly using of unskilled labour or of a particular natural resource. Tin clearly falls in the latter category and, in its early phase, in the former category as well. Rubber is an excellent example of a crop that was highly using of unskilled labour as were numerous of the earlier crops grown in Malaya. The Malay Peninsula, however, did not have a large population in the period under consideration and thus labour had to be imported.

The present chapter examines the machinery that was evolved for the importation of the hundreds of thousands of labourers who in turn developed Malaya's export industries. In this matter government institutions, and what Jochimsen more broadly calls institutional infrastructure, came to play an increasingly important role.

Our discussion of the tin mining industry begins with the consolidation of British rule in 1824-- though it is known that tin was mined in and exported from Malaya for a long time before the nineteenth century.[1] Following the 1824 establishment of British rule, there was a great influx of Chinese settlers. In 1824 there were 200 Chinese miners at Lukut which was then in Selangor but was later incorporated

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[1]It is, of course, impossible to state with precision when Britain gained control of the Malay Peninsula. Penang was ceded to the British by the Sultan of Kedah in 1786 and Province Wellesley in 1800. Singapore was founded in 1819. Malacca, a Malay kingdom captured by the Portuguese in the sixteenth century, then held successively by the Dutch, the British and then the Dutch again, finally became British territory in 1824.

in Negri Sembilan. As Blythe notes, "this was the earliest important Chinese mining centre in the State" and by 1834, the number of Chinese miners had increased to 300.[2] Later, mines were developed at Kanching in Selangor and at Ampang near Kuala Lumpur for the first time. Bloody faction fights broke out between the Ka Yin Chius and Fui Chius with the latter emerging victorious and their headman, Yap Ah Loi, becoming the virtual ruler of the Kuala Lumpur area. In spite of these factional fights, tin continued to provide an attractive incentive to Chinese immigration as did work on agricultural estates.

An early study by Logan in the Journal of the Indian Archipelago provides details of the system of importing Chinese labourers in 1854.[3] The usual procedure was for Chinese merchants to charter a vessel and sail usually in April or May, to Macao or Amoy. On arrival the "charterer" usually hired a number of agents to "go about the country and cajole the unsuspecting people by promises of a speedy fortune and return to their native land . . . they are then huddled on board. The agents received a dollar a head."[4] The ships anchor is scarcely cast, says Logan, when the resident Chinese flock on board to buy Sin-Khehs as the new men were

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[2]W.L. Blythe, "Historical Sketch of Chinese Labour in Malaya," Journal of Royal Asiatic Society, Vol. XX, Part 1, (June, 1947), p. 65. The following description of Chinese immigration draws heavily on Blythe's study written in 1941 and published in 1947 after having survived the Japanese occupation.

[3]This is quoted at length in Ibid., p. 71, citing Logan, Journal of the Indian Archipelago. (Incomplete footnote).

[4]Ibid.

called. "The charterer gets for a master workman . . . 10 to 15 dollars, for a coolie 6 to 10, for a sickly man 3 to 4 or less. The Sin Kheh then agrees to serve for a 12 month, receiving food, clothes and a few dollars for his service."[5]

Those Sin-Khehs unable to pay for their passage entered into an agreement with the master of the junk to bind themselves as an apprentice to someone at the port for one year without receiving wages, but only food, clothing and a small sum for incidentals. The Sin-Khehs were kept on board the junks until taken by an employer who pays part of a year's wages in advance with which the Sin-Kheh could clear himself with the junk master. " . . . as the business is conducted, not through each Sin-Kheh but directly between the junk master and the intending employer, and as the amount for passage money varies with the demand for labour, it has a certain colouring of slave dealing which has prejudiced many against the system. The Sin-Kheh is not bound to go with any person who chooses him. If he pays his passage money, as he agreed to do when starting, at the same rate as others, he is quite free to go wherever he pleases."[6]

The Report of Labour Commission, 1876 describes the system in operation in that year.

> "The method of recruiting the immigrants is as follows: The steamer is usually chartered by a Chinese supercargo for a lump sum, the maximum number of immigrants she can carry being regulated by her official measurements. Some three weeks before the date of projected departure, notice is given

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[5] Ibid.

[6] Ibid.

> in the adjoining villages that a ship is going to Singapore, when bands of men are formed under the leadership of a Kheh-Thau-- or, as he is usually called, headman-- who is generally, but not always, a returned immigrant from the Straits. The Kheh-Thau takes his band to a lodging-house at the port of embarkation, and their departure is arranged for through the agents of the ship-- invariably an European firm, as being less open to be squeezed by the Chinese officials."[7]

The Report of Labour Commission goes on to say that each immigrant's ticket specifies his port of destination and whether his passage-money has or has not been paid. On arrival in port those who haven't paid their passage are detained on board, "the Kheh-Thaus being allowed to land and find employers for their hands who will settle for their passage money. If there is a demand for coolies, the Kheh-Thau makes a large profit, getting perhaps $20 per head for his band whereas they will probably have cost him $13 to $14 . . . No doubt there is something in this which savours unpleasantly of buying and selling, but practically we have no reason to suppose that it leads to many real abuses in the cases of immigrants remaining in the Settlements."[8] The Report also notes that the Kheh-Thaus were not very particular about landing the immigrants at the port for which they embarked. Rather they would land them in ports where the demand for labour was highest.

There were in the 1870's numerous complaints, accompanied by Triad Society-supported riots, alleging the kidnapping and disappearance of Sin-Khehs. Articles appeared in both the Straits and Chinese newspapers alleging shameful overcrowding of the steamers that transported the immigrants. Early efforts such as Ordinance X of 1873 which would

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[7] Ibid., p. 73, citing Report of Labour Commission, 1876.

[8] Ibid.

have regulated the system of immigration were "vigorously opposed by the unofficial members of Council" with the argument that if the importation of labour was discouraged "enterprises of great moment that are now developing must wither and collapse."[9]

However with the revelations of an 1876 Commission of a scandalous state of affairs in which "gangs of coolies" were "driven aboard tongkangs (sailing ships) by armed men for shipment to Sumatra and elsewhere" and that "every conceivable extortion and oppression" were "being freely practised" reform could no longer be resisted.[10] The following year, the Chinese Immigration Ordinance (No. II of 1877) was passed providing for the appointment of a Protector of Chinese, Mr. W.A. Pickering, at Singapore and an Assistant Protector, Mr. E. Karl, at Penang several months later.

A subsequent Ordinance (No. IV of 1880) went further in trying to safeguard the welfare of the Chinese by providing that those immigrants who had not paid their passage would be maintained in government depots for a maximum of ten days during which the ship owner was to find someone to pay the passage money. It was hoped that by using government depots "immigrants would start their careers without any burden of debt, instead of having a heavy drag upon them, not for services rendered to the immigrant, but to afford a profit to middlemen, who bring them into the colony as a speculation.[11]

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[9] Ibid., p. 75.

[10] Ibid.

[11] Ibid., p. 76.

The 1890 "Report of the Commissioners to Inquire into the State of Labour in the Straits Settlement and Protected Native States, with a View to Devising a Scheme for Encouraging Immigration and thereby Supplying the Demand of Labour" reported that the earlier prescribed government depots did not exist. Instead there were private depots licensed by the government. The chapter on the "Defects and Abuses on Arrival," contains the following comments:

> "Scenes of disorder, amounting almost to riot, sometimes occur on the arrival of cooly-ships, rowdies from the shore assaulting the Boarding Officers, boatmen , and depot-keepers, snatching earings and bangles from the women passengers, and endeavouring to persuade the 'unpaid' passengers to run away. To prevent a recurrence of such scenes, several of which took place in 1890, special police have been quartered near the docks, but this cannot ensure the space and quiet necessary for an effective examination."[12]

The Report complains of the great power placed in the hands of depot-keepers whom the Report describes as "unscrupulous." Coolies were forced against their will to enter into those contracts that were most remunerative to the keepers-- often these were contracts to work in Sumatra-- instead of being able to choose the employment and country they preferred.[13]

The 1890 Report describes the terms of contract in ordinary use for Sin-Khehs. The contracts for agricultural work in the Colony and Native States provided for three hundred and sixty days' work with wages at $30 per annum. From these wages $19.50 was deducted for passage and expenses from China. The immigrant during the year was to be fed free of charge by the employer, provided free grant of a mosquito

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[12] Report of the Commissioners of Enquiry into the State of Labour in the Straits Settlements and Protected Native States (Singapore: Government Printing Office, 1890), p. 19.

[13] Ibid., p. 20.

curtain and some clothes. If in debt at the end of a year, the immigrant was to be retained at the wage of $3 a month and his food. The contracts in ordinary use for mining in Perak and Selangor provided for three hundred and sixty days' work with wages at $42 per annum. Deduction for passage was not to exceed $22. Food, mosquito curtain and "usual clothes" were to be provided and, if in debt at the end of a year, the worker was to be kept on at the "wages of a free cooly." [14]

Since in this early period a good part of the immigrant labour found employment on estates rather than tin mines, considerable space is devoted to difficulties that arise on estates. It is pointed out that on European estates coolies are procured for work through the agency of a headman (tyndal). The workers were not paid directly by the manager and in many cases did not even know his name. The employer, having signed the contract at the protectorate, would in the future pay "at contract rate through the headman, whose accounts with his coolies are never examined. Thus the control of the coolies is thrown entirely into the hands of the headman, who has them completely in his power." [15] Considering that the European employer hardly ever spoke Chinese and would seem quite unapproachable to the immigrant worker even if he did speak Chinese, there was no channel through which complaints could be received. "This state of things is calculated to favor ill-treatment on the part of the Tyndals (headmen), and such practices undoubtedly exist." [16] "We have," the Report notes, "no doubt that in both European

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[14] Ibid., p. 21.

[15] Ibid., p. 22. This would seem to be an appropriate place to point out that the situation of immigrants coming to work in rubber, as opposed to other crops or tin, and of Chinese as opposed to Indians, might indeed be very different. Additional detail on the conditions of the various groups will be found in Blythe, op. cit., which traces the "principal developments" regarding "Chinese labour on mines and estates" and in Kernial Singh Sandhu, Indians in Malaya: Immigration and Settlement, 1786-1957 (Cambridge: Cambridge University Press, 1969).

[16] Report of the Commissioners . . .into the State of Labour (1890), op. cit., p. 22.

and Chinese estates, coolies are not infrequently beaten and otherwise ill-treated by their Tyndals or headmen. This is done without the knowledge of the employer who may often be without power to check such practices."[17]

Some good results did flow from the work of the 1890 Commission with its indictment of practices clearly prejudicial to the Chinese labourers' welfare. The Report made clear the necessity for inspection of places of employment and this was incorporated as one of the major recommendations of the Commission. As the Protector noted this had been long advocated by government officers acquainted with conditions on the estates. Partially as a result of the Commissions' Report the machinery for the protection of Chinese Labour was extended throughout Malaya. In addition to the earlier established protectorates, 1881 in Penang and 1893 in Perak, Protectorate offices were ~~were~~ opened in Selangor in 1890, Malacca in 1911, Negri Sembilan in 1914, Kedah in 1923, Johore in 1927 and Pahang in 1938.[18]

The early 20th century saw a movement towards consolidation of the various state enactments pertinent to labour. Three main enactments were passed in 1904-- the Labour Enactment (General), the Labour Enactment (Chinese Mining) and the Labour Enactment (Chinese Agriculture)-- which attempted to provide for more uniformity in labour matters.[19]

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[17] Ibid., p. 23.

[18] Blythe, op. cit., p. 85.

[19] Ibid., see p. 89 for more detail.

Another Commission was convened in 1910. Its main task was to comment on the advisability of the continuance of indentured labour in the face of a rapidly growing demand for labourers to work in rubber. Since the 1905 introduction of rubber, its rapidly rising price had had the effect of pitting tin and rubber against each other in competition for labourers. In 1908, the average price of rubber was 4s. 4 3/4d. a pound and the highest price was 5s. 9 1/2d. In 1909, the respective figures were 7s. 1d. a pound and 9s. 3d. and in 1910 8s. 9d. and 12s. 7d.[20] With a rising price of rubber, the demand for workers increased. At the same time indentured labour was becoming less important. The number of indentured Chinese labourers entering the F.M.S. fell from 7,642 in 1900 to only 721 in 1908 with a slight rise to 863 in 1909 being attributed to "the extensive cultivation of rubber and the scarcity of other labour."[21]

The 1910 Report also speaks of continuing problems-- non-treatment of sick and diseased labourers, the supplying of opium at high prices, the locking-in of coolies between the hours of 6 P.M. and 6 A.M.-- which resulted in the introduction of seven bills before the Federal Council. Of these seven proposals, said to be necessitated by the extension of the cultivation of rubber and the increase in the demand for labour, two important pieces of legislation emerged.[22] The first was the Labour Enactment of 1911 designed to reduce what the Chief Secretary called the "terrible mortality" on estates by making provisions for the proper supervision and treatment of labourers.[23] The second important

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[20] Ibid., p. 90.

[21] Ibid., p. 91.

[22] Ibid., p. 93.

[23] Ibid., p. 96. See for additional details and descriptions of visits to estates.

piece of legislation to emerge in this period, the Labour Code of 1912, was basically a summary statement of the laws which had been in force for many years in the Federated Malay States. An amending Enactment, No. 32 passed in 1914 finalized the abolition of indentured labour which abolition had been recommended in the 1910 Report.

In fact, the legal abolition of indentured labour had little practical effect as the Chinese mines-- the largest employers of labour-- had practically ceased to employ indentured labour anyway. They had developed two new systems: private recruitment and lodging houses. The first of these, private recruitment, was similiar to the Kangany system used in recruiting Indian labour. A Chinese employer needing labourers would send his Kepala or contractor to China to recruit. Often the recruiter would go to his own village or district, which would also frequently be the district of his employer. Having found men willing to emigrate, the recruiter would pay the labourers' expenses to Malaya. On arrival there and after being put to work, an account would be opened in the employer's book for each Sin-Kheh and the first entry would be a debit for the amount necessary to cover the cost of importation.

> "This sum would be arrived at by taking all the expenses of the trip-- including the expenses of the recruiter and his assistants to and from China-- with generous allowances and 'squeeze' so that the employer should make a profit on the transaction even allowing for the absconding of a few of the newcomers before repayment. The wages of the newcomers were usually assessed according to the ability shown."[24]

Actually, wages weren't paid; they were credited to the labourer's account. Items, like food (unless provided free), clothing, chandu, tobacco and matches-- all of which could be obtained from a shop kept by the employer-- were debited against the account. In effect, this

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[24] Ibid., p. 99.

represented a continuation of the old traditions and customs of indenture and it is said that labourers regarded themselves as under a moral obligation to fulfill their contracts provided they were reasonable. Also continued were the traditions of close surveillance by Chinese Kepalas and Sikh watchmen and locking of the Kongai doors at night.

The lodging house system which worked side by side with the system of personal recruitment operated as follows. Brokers in China recruited labourers and either themselves brought them to Malaya or sent them through lodging houses. The lodging houses in Malaya served as reservoirs for newly arrived labour and as employment exchanges. Chinese mine owners looking for labour would go to the lodging houses to recruit. There the employer could select from among the new immigrants or unemployed labourers who had returned to the lodging houses in the hope of being employed. According to the Labour Code the Protector was empowered to fix the maximum sum for which any immigrant should be indebted for passage money and advances from the lodging house and in order to secure labourers, the employer was to make a cash advance to settle the labourers' debts. In actual operation, the amount of this advance came to be regulated not by the amount owed by the labourer but by the supply and demand for labour. With rubber prices high and labour in high demand, the "price" of a Sin-Kheh went as high as $70. In times of low labour demand, the amount was as low as $2 for laukhehs (old hands) all of which might be owed to the lodging house. That the employers preferred this system is attested to by the fact that they declined the government's offer to extend the Indian Immigration Scheme to apply to Chinese and numerous similar offers from about 1910 through the 1920's.[25] In 1922 it was recommended that a General Labour Board

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[25] Ibid., p. 101 for details of these schemes.

be established for Malaya. The functions of this Board would have been, inter alia, the regulation and control of the recruiting of all classes of immigrant labour with the Board representing both agricultural and mining interests. The interests did not opt for the establishment of such a Board and the government did not force establishment of the Board. Ultimately the private recruitment and lodging house systems were ended by the Aliens Ordinance in the 1930's.

Next we turn to Indian immigration to the Malay Peninsula. A very early report states that Indian immigration dates from the beginning of the 19th Century and that it increased pari passu with the demand for labourers which followed the establishment of British power on the eastern side of the Bay of Bengal.[26]

The immigration was in no way restricted by law until 1857. In that year and in 1859 following reports of overcrowding in ships, Acts were passed regulating passenger traffic in the Bay of Bengal. These Acts had the effect of increasing the cost of the voyage and in consequence, there arose a system of assisted immigration.

In 1870 when allegations of kidnapping Indian peasants for shipment to the Penang market were made, the Government of Madras declared it would no longer allow emigration unless the safeguards and checks imposed by law, in particular Act XIII of 1864, were enforced. This firm stand on the part of the Madras Government was not to last long however. On the

> "very urgent representations of injury to the agricultural industries of the colony caused by the check to emigration,

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[26] Report of the Commissioners of Enquiry into the State of Labour in the Straits Settlements and Protected Native States, op. cit.

> an Act (XIV of 1872) was passed enabling the Governor-General in Council to issue a notification exempting emigration to, or contracts for labour to be performed in, the Straits Settlements from all or any of the provisions of the Emigration Act, 1871 (which had meanwhile superseded Act XIII of 1864)."[27]

Giving final effect to these arrangements took four years. They finally appeared as Ordinance I of 1876 in the Straits and Act V of 1877 in India.[28]

The immigration described thus far was of workers coming in connection with the growing sugar cane cultivation in Province Wellesley. Until about 1887, sugarcane was the chief planting industry and until 1885 Indian labourers were recruited for work on these plantations on indenture under the provisions of India Act V of 1877.[29]

With the repeal of Act V in 1885, recruitment of Indian labour was freed from legal restrictions, but executive rules required that recruiters sent over by persons in the Straits be registered and granted licenses by the Straits Immigration Agent. Persons recruited under these rules

> "were also registered and on arrival in the Straits came under the provisions of the Indian Immigration Ordinance, 1884; and all the persons who had received advances as defined in the Ordinance were bound to execute three year contracts on arrival at the Straits or to repay the advances received together with 'smart' money."[30]

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[27] A.K.G. Ahmad Tambi Marakkayar and W.E. Marjoribanks, Report on Indian Labour Emigrating to Ceylon and Malaya (Madras: Superintendent, Government Press, 1917) p. 99.

[28] Ibid.

[29] This description of Indian immigration draws heavily on Ibid.

[30] Ibid., p. 28.

With the growth of coffee planting in the late 19th century, more and more free labourers were brought into Malaya, the executive rules just described notwithstanding. In 1897, the executive rules were cancelled and the Indian Government ceased to exercise any direct control over emigration to Malaya.

In the early 20th century, the rapid growth of rubber, which was earlier described, began. Shortly after its 1905 introduction, rubber replaced sugar and coffee as Malaya's most important crop; the growth of rubber plantations proceeded rapidly. With the demand for labourers very high, there were numerous complaints of "unscrupulous neighbors" crimping labourers recruited from India at considerable cost. In this early twentieth century period there were three kinds of immigrant labour-- indentured or contract labour, kangany-recruited labour and the so-called independent labour. Indentured labour was engaged under the provisions of the Indian Immigration Ordinance VI of 1904 which superseded Ordinance VII of 1899 which had earlier superseded the Immigration Ordinance of 1884. The indentured labourers mainly worked in the sugar estates, on roads and railways and a few on rubber estates. Kangany-recruited labour formed the majority of the labour force on the rubber estates. Managers, needing labourers, sent kanganies or headmen to recruit under licenses issued by the Superintendent of Immigrants. The labourers received free passage but did not enter into indenture on arrival in Malaya. They were expected to pay back the cost of their passage but it was a recurring complaint among managers that labourers were often enticed away by other employers before they had paid back their advances. Independent labourers were men recruited in India by proprietors opening up new estates. These proprietors, having no

established labour force from which to draw kanganies, were forced to resort to professional labour agents or recruiters in India. There were frequent complaints of the character and physique of labourers so recruited.

With the rapid growth of rubber and the continuing growth of tin with consequent high demand for labour, the governments of Malaya began to show keen interest in the question of supplying labour. In 1907, the control and supervision of Indian immigration was vested in an Immigration Committee consisting of the Superintendent of Immigrants (whose title was later changed to Controller of Labour) as Chairman, the Principal Medical Officer of the F.M.S., the Director of Public Works of the F.M.S. and "four or five non-official gentlemen, members of firms of estate agents or managers of estates. This committee, after consulting the Planters' Association of Malaya, recommended that the cost of importation of Tamil labourers should be distributed amongst all those who employed them, and the Indian Immigration Fund Enactment (incorporated in the Federated Malay States Labour Code of 1912) was subsequently passed."[31] Similar rules or enactments were passed in the U.M.S. and for all practical purposes, the law relating to Indian labour in the Colony can be taken to be identical with the provisions of the F.M.S. Labour Code of 1912. Thus under this arrangement assessment was levied on all employers of Indian labour with the proceeds going into an Immigration Fund. The Fund was administered by the Controller of Labour "solely in the interests of importers of Indian labour."[32] An

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[31] Ibid., p. 29.

[32] Ibid., pp. 29-30, see for additional details on how the assessment was calculated, and related matters.

estate manager or other employer wishing to recruit labor would thus select a recruiter from his own labour force and apply to the Indian Immigration Committee at Penang for a license. Having received the license, the kangany proceeded to the Madras Presidency where fourteen recruiting inspectors stationed at various places stood ready to assist the kangany in forwarding his recruits. Often the kanganies worked in conjunction with agents retained by employers. To obviate the danger of a kangany running off with advances of cash made by the Malayan employer, the agents would on the employers' instructions make advances to the kanganies and pay commission for each labourer actually produced by the kanganies and shipped. The agents in India cabled the employers in Malaya when labourers were shipped and thus the employer could know in advance the number of labourers he would be receiving.[33]

The success of the rubber estates, particularly after the 1907 establishment of the Immigration Committee, in importing sufficient labour to almost overnight develop a new industry is shown in the table on page 119. The importance of Indian labour to the large rubber estates is shown in the table on estates over 100 acres in size on page 120.

At the time of Marjoribanks and Marakkayar's study, 1917, tappers were paid 25 to 35¢ a day rising with greater efficiency to 35 or 45¢ a day. Women tappers were paid 25 to 30¢ a day and boys and girls 10 to 15¢ a day.[34]

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[33]Additional very interesting details are provided in Ibid., pp. 29-33.

[34]Wages will be discussed at greater length in Chapter X.

STATEMENT OF ARRIVALS BETWEEN MADRAS PRESIDENCY AND MALAYA[35]

	Statute adult labourers		Non-Statute recruited labourers with free or assisted passages		Other third-class passengers		
YEAR	Males	Females	Adults	Minors	Adults	Minors	TOTAL
1900	5,676	1,939	7,365	1,542	20,371	1,636	38,529
1901	1,883	902	3,871	1,356	18,701	1,546	28,259
1902	1,849	581	1,757	260	14,488	1,307	20,242
1903	385	97	1,994	155	18,080	1,319	22,030
1904	2,333	337	3,556	331	22,665	1,479	30,701
1905	3,854	969	8,049	1,099	24,179	1,389	39,539
1906	2,937	737	20,498	2,149	24,419	1,301	52,041
1907	4,565	934	24,882	2,066	28,345	1,482	62,274
1908	4,506	950	20,281	1,560	25,755	1,419	54,471
1909	3,557	562	20,449	1,514	22,596	1,139	49,817
1910	2,289	234	56,092	4,255	19,742	1,111	83,723
1911	--	--	78,376	6,013	22,842	1,240	108,471
1912	--	--	73,693	6,145	25,552	1,538	106,928
1913	--	--	83,849	7,387	25,738	1,609	118,583
1914	--	--	34,247	2,658	13,562	750	51,217
1915	--	--	51,278	3,603	19,246	1,196	75,323
1916	--	--	65,173	6,918	21,801	1,674	95,566

STATEMENT OF DEPARTURES BETWEEN MALAYA AND MADRAS PRESIDENCY

YEAR	All Third-Class Passengers		
	Adults	Minors	TOTAL
1900	10,739	512	11,251
1901	15,434	770	16,204
1902	17,219	964	18,183
1903	16,868	964	17,832
1904	18,649	901	19,550
1905	18,799	955	19,754
1906	21,144	735	21,879
1907	29,631	891	30,522
1908	29,774	1,146	30,920
1909	30,284	1,090	31,374
1910	37,829	1,251	39,080
1911	46,464	1,639	48,103
1912	61,350	2,535	63,885
1913	66,695	3,395	70,090
1914	60,408	2,665	63,073
1915	48,137	2,183	50,320
1916	52,397	2,082	54,479

[35] A.K.G. Ahmad Tambi Marakkayar and N.E. Majoribanks, Report on Indian Labour Emigrating to Ceylon and Malaya (Madras: Government Press, 1917), p. 26.

LABOUR FORCE ON ESTATES OVER 100 ACRES IN SIZE (1915)[36]

Province or State	Number of estates	Area planted (Acres)	Area producing (Acres)	Labour force (workers only) Men, women and children.		TOTAL
				Indian	Others, i.e. Chinese, Malaya and Javanese.	
Selangor	324	211,704	125,261	64,568	10,779	75,347
Perak	365	166,248	91,069	51,707	18,609	70,316
Negri Sembilan	166	109,723	59,934	10,373	20,476	30,849
Pahang	31	11,804	4,866	1,461	2,422	3,883
Total: Federated Malay States	886	499,479	281,130	128,109	52,286	180.395
Johore	153	131,396	47,609	9,399	20,350	29,749
Kelantan and Kedah	151	70,049	19,011	6,505	16,169	22,674
Trengganu	8	2,611	nil.	18	4,543	4,561
GRAND TOTAL	1,198	703,535	347,750	144,031	93,348	237,379

[36] A.K.G. Ahmad Tambi Marakkayar and N.E. Majoribanks, Report on Indian Labour Emigrating to Ceylon and Malaya (Madras: Government Press, 1917), p. 27.

Again, the importance of institutional infrastructure in labour matters should be stressed. The government bore the entire cost of administering the Immigration Fund, maintained camps and depots at Madras and Negapatam for housing of labourers pending shipment, provided officials in India to assist recruiting in various ways and annually subsidized the steamship company which maintained the weekly service from India to the Straits.[37] Government involvement also extended to the matter of health and the general welfare of labourers once in Malaya. The Controller of Labour and his deputies and assistants with the aid of various district medical or health officers "systematically inspect estates and other places where labourers (Indian and others) are employed . . . All matters in any way concerning the labourer's health and welfare receive notice."[38] The F.M.S. Labour Code (which reproduced the provisions of the 1911 Estate Labourers Protection of Health Ordinance or Ordinance VII) provided inter alia that every employer must provide for labourers employed by him and residing on the estate the following:

a) sufficient and proper house accomodation,
b) a sufficient supply of wholesome water,
c) sufficient and proper sanitary arrangements,
d) hospital accomodation and equipment,
e) medical attendance and treatment including diets in hospital,
f) a sufficient supply of medicines of good quality.[39]

Later chapters will comment on wages, health and other measures of welfare. The purpose of this chapter has been to describe the machinery for the importation of labour which allowed the rapid creation of the tin and rubber export industries and to stress government's important role in labour matters.

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[37] Marakkayar and Marjoribanks, op. cit., p. 31.

[38] Ibid., p. 33.

[39] Ibid., p. 36.

Chapter V

INDUCED CREATION OF MATERIAL INFRASTRUCTURE

Preceding pages have developed the theme that labour policy was important in developing Malaya's export industries. Labour policy, it was suggested in turn, could be understood by focusing on "institutional infrastructure". The latter constitutes the "framework within which economic entities set up and realize their plans."[1] More specifically in Malaya's case, those developing the export industries enlisted the help of government which formulated policies that made possible the efficient recruitment of hundreds of thousands of Chinese and Indian labourers. The following pages will stress the importance of material infrastructure (items such as transport systems, energy supply, etc. usually provided by the state) in developing the export industries. In the first instance, coordination of water transport with rail and later road transport was crucial in the exploitation of Malaya's tin and its shipment to markets in the West. The growth of the first export industry, tin, induced the growth of the rail system. As noted in Chapter I such induced development of infrastructure was important not only in initiating growth but might be important in promoting further growth by making more feasible the growth of additional industries (either export or domestic industries).[2] Furthermore, infrastructural policy continued to be important in shaping the contours of growth

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[1] See Chapter I.

[2] Chapter VI and IX assess the extent to which such growth occurred.

(here the technological nature of the production function was also suggested as important) with the ultimate rigidification or "freezing" of the dualistic pattern originally created as the outcome. Railways and roads are singled out in this discussion as important items of material infrastructure. The Straits ports, enjoying duty-free status, may be thought of as elements of institutional infrastructure (as well as material infrastructure) to be used in complementarity with the rail and road system. The creation of duty-free ports and subsequent policies aimed at developing the tin export industry (and at developing the requisite material infrastructure such as railways and roads) can best be understood in the context of British and Dutch trade competition in Southeast Asia to which we now turn.

From about the time of the Napoleonic Wars, Britain was increasingly concerned to find overseas markets for the products of her mills and factories. " . . . by 1800 England was producing vast quantities of cheap cotton goods which could undersell local produce even in British India . . ." [3] Penang was recognized early on as a desirable repairing harbour and a convenient port for the Eastern trade. It and Malacca, "once the wonder of all India," were "the first ports in the Malay Archipelago to become free ports" though both were destined to become, by the early nineteenth century, "commercial dependencies of Singapore." [4]

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[3]P.P. Courtenay, A Geography of Trade and Development in Malaya (London: G. Bell & Sons, Ltd., 1972), p. 67 citing J.S. Furnivall, Netherlands India (Cambridge: Cambridge University Press, 1939), p. 68.

[4]Wong Lin Ken, "The Trade of Singapore, 1819-69," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. 33, part 4, pp. 86-87. See the interesting section on "The Rise of Free Ports in the Malay Archipelago," pp. 86-105.

The promise of Singapore was also obvious at an early date. "It possessed extensive and safe harbours and was placed within easy reach of the surrounding countries . . .strategically, it could be used as a base to protect the China trade in times of war and not the least important was the fact that Singapore completely outflanked the Dutch at Malacca." [5] An important concern of Britain in her competition with the Dutch in Southeast Asia, was the opening up of new markets. To Britain's disappointment, the end of the Napoleonic Wars had not seen an opening up of Europe to British manufacturers but rather erection of a tariff wall to protect the industries that had grown up under the shelter of Napoleon's Continental System. [6] With growing trade in important items like cotton piece goods and opium and the realization that Penang was too peripheral to serve as a British entrepot for trade in the archipelago, an 1819 treaty was signed by Johore plenipotentiaries and Stamford Raffles ceding Singapore to the British. [7] The new port was kept free from duties.

> "For the first thirty or so years of its existence, Singapore was one of the freest of the contemporary world's free ports. Not only was trade exempt from import and export duties, tonnage and port dues, wharfage and anchorage duties, but also from the payment of port clearance fees and stamp duties. Even the Navigation Acts and the East India Company's monopoly of the trade with China, both increasingly anachronistic, were flouted. The former with official connivance and the latter by commercial sleight-of-hand." [8]

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[5] Ibid., p. 25.

[6] Ibid., p. 28.

[7] Ibid., pp. 11-34 in particular describes in more detail events surrounding the treaty and what concerns informed British policy in the period.

[8] Courtenay, loc. cit. Also see Wong Lin Ken, "The Trade of Singapore. . ." op. cit., on Singapore's duty-free status.

The British policy of establishing duty free ports at each end of the Straits of Malacca for the simple purpose of drawing as much trade as possible away from the Dutch ports succeeded. "Within a relatively short time, the Straits ports, and particularly Singapore, had developed as entrepots, receiving, grading, baling and forwarding the varied produce of the East Indian archipelago, carried to their wharves by Bugis prahus, and sending the piece-goods, ironware and China of Britain to almost every harbour and creek in the islands." [9] The ports' population and the volume of trade rose steadily. Ships converged on the ports from all of Southeast Asia and Singapore, quite early on, carried on a considerable trade with China, North America, India, Britain and Europe.[10] Meanwhile in the Peninsular hinterlands of Singapore, Malacca and Penang, agriculture and mining were expanding. [11] Accessibility by river to the Straits ports was an important factor locating these developments.

Earlier it was noted that the opening of the Suez Canal in 1869 was an event of great importance in Malaya's development. [12] Roughly coinciding with the Panghor Treaty which brought greater political stability,

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[9] Courtenay, op. cit., pp. 102-3.

[10] See graph, Ibid., p. 75. One indication of the success of Britain's duty-free ploy is the fact that between 1829 and 1858, the Dutch established ten free ports including Riau on Singapore's doorstep. (p. 76.) Also, see Wong Lin Ken, op. cit., pp. 205-301 for extensive data on Singapore's trade with various parts of the world.

[11] The growth of tin mining was described in an earlier chapter. Details on the growth of agriculture--such crops as sugar, coffee, gambier, etc. as well as rubber--are provided in James C. Jackson, Planters and Speculators (Kuala Lumpur: University of Malaya Press, 1968). Also see C.M. Turnbull, The Straits Settlements 1826-67 (London: The Athlone Press, University of London, 1972) Chapter IV.

[12] Transit time between London and Singapore was cut by approximately ten weeks.

the opening of Suez reaffirmed the strategic positions of the Straits ports and had the effect of modifying and re-aligning their trade links. As many former markets fell away in the 1870's, trade with the Malay Peninsula itself steadily increased.[13] Courtenay is succinct in describing the new role of the Straits ports. They served as "the points where international trade touched the periphery of a still largely underdeveloped Malaya, to put the primary products from the peninsula's mines and plantations into contact with the world market and to inject cheap European, and to some extent Indian, goods into the economy."[14] Thus duty-free ports, with a rail and road system to later complement them, became an important link between world markets and the mines and plantations of Malaya with important long-term implications for the economic development of Malaya.

It is also significant for this study that Malayan tin deposits are deposed in two well defined parallel belts on the western and eastern sides of the country separated by a zone that is virtually devoid of tin.[15]

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[13]Courtenay, op. cit., p. 77 goes into the reasons why former markets fell away. A primary reason for the increase in trade with the Peninsula was, of course, the growth of the tin industry which was described in Chapter II.

[14]Ibid., p. 108.

[15]The western tin belt is the larger and richer. It extends from the Thai border with Perlis to northwestern Johore in the vicinity of Muar with three major areas of concentration of allucial cassitinite in the Kinta Valley, in Selangor and in the Main Range extending from Ulu Selangor to Bentong. "The eastern tin belt of Malaya is best developed in Trengannu and the adjacent parts of Kelantan and Pahang and (continued on the next page, 126)

These well-defined and rich tin deposits were made easier of exploitation by the small size of the peninsula and the relatively easy terrain which permitted the development of material infrastructure that would ultimately grow from jungle trails to efficient railways and roads linking the tin-fields to the duty-free ports. The money to build Malaya's road and rail network came in large part from the export duty on tin (and later rubber). The table on p. 128 shows the contribution of the tin export duty and rubber export duty to total government revenue.

In the early period following the 1824 cession of Malacca to Britain, physical accessibility of tin deposits from the ports of Malacca and Penang was the determining factor in locating mining activity. Transport to the ports of both tin and supplies was by river or porter and in this period mining centered on Lukut as an area of accessible tin deposits close to the sea.[16] Both the actual working as described in Chapter II and the financial backing of the tin mines were in the hands of the Chinese. Following 1824, new mines were opened as older areas deposits--such as those of Malacca--were exhausted.

Throughout the mid-nineteenth Century, exploitation of Malaya's tin deposits followed a familiar pattern. "Penetration was invariably

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[15] (cont.) is continued further south in southwest Pahang and east Johore. Northwards this belt disappears into the Gulf of Thailand . . ." The Tai-Malay Peninsula "appears to have experienced a sequence of seven plutonic episodes since the pre-Cambrian" and in consequence the western tin belt is "the most highly stanniferous zone in the world." Courtenay, op. cit., pp. 49-52.

[16] Courtenay, op. cit., p. 80.

F.M.S. TOTAL REVENUE AND EXPORT DUTY FROM TIN AND RUBBER, 1898-1938 [17]

Year	Total Revenue ($m.)	Export Duty on Tin ($m.)	Export Duty on Rubber ($m.)	Percentage of Tin Export Duty to Total Revenue (%)
1898	9.4	3.2		34.2
1899	13.5	6.2		45.8
1900	15.6	7.1		45.1
1901	17.5	7.0		39.7
1902	20.6	8.4		41.0
1903	22.7	9.6		42.3
1904	22.3	8.8		39.6
1905	24.0	9.2		38.5
1906	27.2	10.0	0.05	36.8
1907	28.8	9.4	0.10	32.6
1908	24.6	7.3	0.11	29.5
1909	25.2	7.2	0.38	28.3
1910	26.6	7.2	0.96	26.9
1911	35.1	8.8	1.00	25.1
1912	42.6	10.9	1.6	25.4
1913	44.3	10.7	1.4	24.2
1914	37.3	7.0	1.3	18.8
1915	40.8	7.2	2.4	17.7
1916	51.1	7.9	3.9	15.4
1917	65.6	9.3	3.3	14.2
1918	68.4	13.1	2.3	19.1
1919	72.1	9.9	4.9	13.7
1920	72.3	12.2	4.4	16.7
1921	54.4	6.2	0.2	11.3
1922	52.5	5.8	0.8	10.9
1923	64.0	8.3	4.7	12.9
1924	70.7	12.5	4.2	17.7
1925	86.6	14.0	8.7	16.1
1926	102.5	15.6	11.2	15.1
1927	105.4	17.7	8.6	16.7
1928	95.7	16.0	3.7	16.7
1929	81.8*	15.4	4.3	18.8
1930	65.6*	9.1	1.1	13.9
1931	52.3*	5.5	0.5	10.5
1932	43.8*	3.6	0.4	8.2
1933	47.2*	4.9	0.6	10.3
1934	58.9*	8.9	2.2	15.0
1935	62.4*	9.7	2.2	15.5
1936	68.1*	13.4	2.8	19.6
1937	80.9*	19.5	4.8	24.0
1938	63.1*	8.1	1.6	12.8

*Total revenue for the years 1929-38 is exclusive of railway receipts.

Sources. Sir Lewis Leigh Fermor, Report Upon the Mining Industry of Malaya, 88, Table 34, and F.M.S. Annual Report for 1938, Appendix A, 115-16.

Footnoted on next page.

by river and groups of miners followed streams to their sources in search of tin-bearing ground."[18] By 1859, tin was being exported from the upper Klang River and a trading settlement-- later to be the city of Kuala Lumpur-- was established to service the area. Development of the upper Klang area was soon to be followed by the opening up of Larut and Kinta-- the two most important tin mining areas of the peninsula. Their opening coincided with the establishment of British political control in 1874. Following that event, Malaya's tin production rose rapidly.[19]

"When the first British residents were appointed in Perak and Selangor in 1874, there were only two short stretches of cart road in existence."[20] One of the roads ran from the Chinese mines to the navigable estuary of the Larut River and the other ran from Kuala Lumpur on the Klang River to the mining camps in the vicinity. Expansion of this very meager road system was designed to supplement water transport in expediting the movement of tin from the interior to the Straits ports and on to world markets. "The earliest attempt to open the country was the construction of cart roads from the mining centers-- Taiping in Larut; Kuala Lumpur in Selangor; Seremban in Sungei Ujong-- to the nearest water navigable by small streams."[21]

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[17] (From preceding page) Lim Chong-Yah, Economic Development of Modern Malaya (Kuala Lumpur: Oxford University Press, 1967), Appendix 9.1, p. 350. Unfortunately there are not available earlier reliable figures.

[18] Ibid., p. 81.

[19] See the figures provided in Chapter II.

[20] Lim, op. cit., p. 276.

[21] Ibid., citing Sir F.A. Swettenham, British Malaya (London: John Lane The Bodley Head, 1907), p. 237. It is obvious that early Residents, such as Sir Hugh Low, were aware of the importance of road construction. See, Emily Sadka (ed.),"The Journal of Sir Hugh Low, Perak, 1877," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. 27, part 4, p. 34. Other very interesting details of Perak in this period are also provided in this journal.

The high cost of road maintenance, however, caused the government to turn to the construction of railways. In 1885 after four years on construction work, an eight and one-fourth mile line was opened between Taiping and Sapetang (renamed Port Weld).[22] A government subsidy provided for daily steamer service from Port Weld to Penang. After the mid-1880's, roads and railways grew together and a new pattern emerged in which the road construction pattern was shifted to link mining centers with the railway lines instead of the rivers. Bullock carts were the main form of road transport--supplemented by elephants which were used by royalty and the very wealthy.

The complementary use of roads and railroads promoted the growth of the tin mining industry. " . . .existing townships expanded in size and new ones sprang up . . . with increased Government revenue, more investment was made in road construction and this in turn, by reducing transport cost and making inaccessible mining lands accessible, helped the further growth of the tin mining industry, providing in turn more revenue for capital formation in the road sector."[23] Additionally, Malaya's growing infrastructure of road and rail would for many years help to assure the needed

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[22]Courtenay, op. cit., p. 86. Rail construction in this period is also described in Fifty Years of Railways in Malaya 1885-1935 (Issued by the F.M.S. Railways, September, 1935.).

[23]Lim, op. cit., p. 277.

labour to work the mines. In the early Twentieth Century, it is noted that "Third class tickets will be issued at 1 cent per mile to immigrant coolies, without any restriction to number, on their first arrival from port of arrival to destination on production of a printed form duly filled in and signed by the Immigration Agent, the Protector of Chinese or authorized agents."[24]

By 1880, Kuala Lumpur was connected by road to Damansara and by 1883 "a coherent road construction programme was implemented to link together with a trunk road the mining districts from the northern to the southern end of the state." [25] The road building continued to be supplemented by rail construction. A railway from Kuala Lumpur to Bukit Kudah was built between 1882 and 1886 and was extended over the Klang River by construction of the Connaught Bridge to Klang in 1890. The importance of this rail link to the mining community is underscored by the fact that two of the principal members of the Chinese mining community, "The Captain China and Towkay Ah Yok . . . on recently hearing there was great difficulty in obtaining a sufficient labour force, came forward in the most public spirited manner and supplied the Government with 300 mining

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[24]Federated Malay States Railways, Tariff Book, No. 5 (Kuala Lumpur: Federated Malay States Government Printing Office, 1921), p. 10. See for fares on all matters of goods.

[25]Courtenay, op. cit., p. 88.

coolies at a time when such assistance was of the utmost value in accelerating the progress of the works . . ." [26]

Roads and railways were also important in the development of the rich tin fields of the Kinta Valley. An intensive road building program contributed to the 1889-95 "Kinta tin rush." [27] In fact by 1891 every important mining area in the Kinta Valley was linked by road to the Kinta River. Villages or settlements (some of them newly created such as Batu Gajah) served as transhipment points. A trunk road was constructed linking the Kinta tinfields to the railhead at Taiping. By 1893 a rail line connected Tapah with Telok Anson. [28] In 1896, Ipoh and Telok Anson were linked by rail. So important was transport to the developing mining industry that the principal Chinese towkays were on occassion willing to go so far as to lend the government money for rail construction. For example, the principal Chinese towkays at Gopeng were prepared to lend the government $1,500,000 at 5% interest for construction of the rail link between the Kinta Valley and Telok Anson.[29]

Developments in Negri Sembilan followed the pattern described in Perak and Selangor. Following the construction of a road from Seremban to Port Dickson, road communications were extended into the Pantai and Setul Valleys of Sungei Ujong providing a fillip to mining in those areas. In 1891 a privately built railway linked Seremban to Port Dickson.

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[26] Fifty Years, op. cit., p. 10 citing The Straits Times, Wednesday, 22nd September, 1886.

[27] Courtenay, op. cit., p. 86.

[28] Telok Anson was first known as Telok Mah Intan. It replaced the shallower Durian Sabatang that was used earlier. Courtenay, op. cit., p. 86.

[29] Wong Lin Ken, The Malayan Tin Industry to 1914 (Tuscon, Arizona: University of Arizona Press, 1965), p.93.

By the turn of the century, barely fifteen years from the opening of the country's first railroad, all the major tin mining towns and districts on the central west coast of Malaya were linked by rail with their respective ports--Taiping with Port Weld, Ipoh and Tapah with Telok Anson, Kuala Lumpur with Port Swettenham and Seremban with Port Dickson. The close relationship between the growth of infrastructure and the tin export industry is obvious. "The primary object of capital formation in the railway sector. . . was to facilitate the export of tin-ore and the import of mining equipment, foodstuff and other goods required by the tin mining industry, then the only major export industry of Malaya and the main source of government revenue." [30] With the considerable aid of the government's infrastructural policy as well as its labour policy (described in Chapter IV) almost all of the tin areas of Perak, Selangor and Negri Sembilan had been discovered and worked by the 1896 creation of the Federated Malay States. [31]

This would seem an appropriate place to explicitly acknowledge that labour policy and national institutional infrastructure policy--though singled out for special attention in this study--were not the only important factors in aiding the growth of tin mining. Wong Lin Ken's study discusses such other important factors as security of mining leases (In Selema, for example, Abdul Karim b. Ibrahim was granted by the government a concession to all the Selema mining land for twenty one years) and other "enlightened" governmental policies regarding tin. In an effort to help assure that investment in tin would not be discouraged "neither tin nor opium duties

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[30] Lim, op. cit., p. 273.

[31] Courtenay, op. cit., p. 89.

were raised or officially discussed in the State Council until Chinese opinions had been sounded and the consent obtained informally through the influence of Captain Ah Kwi." The government effort went still further. When mining enterprise suffered in Selangor due to want of labour and capital, the revenue farms for Ulu Langay and Ulu Selangor were given for four years to Yap Ah Loy and Ah Yok with the result that mining activity was expanded. Wong Lin Ken also stresses the important role of advancers in tin's early history. "Chinese mining companies . . .were all financed by a system of advancers . . ." Though the principal mining advancers were Chinese, Wong suggests that a very small amount of capital came from China to finance the Perak and Negri Sembilan mines. Regarding the latter state, he suggests that the bulk of the capital came from the Straits Settlements and Malay States. "As the majority of the mines were owned and financed by the Chinese advancers and as the Chinese were important merchants in these territories, it may be inferred that Chinese mercantile capital was involved in financing the mines to a very considerable extent." Western banks apparently had no direct role in financing the mines in the late 1800's, according to Wong. [32]

The pattern initially sketched out by the location of tin deposits, rivers and the Straits ports was given further rigidity by the continuing development of infrastructure. Having joined the major mining states politically in 1896, the government was desirous of a rail link of the states. Between 1899 and 1904, all the mining centers in Perak, Selangor and Negri Sembilan were linked longitudinally. The state railways and the privately owned Ujong railway were combined to form the F.M.S. Railways and the construction of a north-south line made possible uninterrupted travel from Port Dickson via Seremban to Prai opposite

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[32]Wong Lin Ken, Malayan Tin Industry, op. cit. Wong infers this from the fact that The Chartered Bank of India, Australia and China, which had opened in Taiping and Kuala Lumpur in 1888, closed in 1895 because there was "no field for Banking operations." See page 60-64 for details. The quotes in this paragraph are respectively from pp. 86-87, 60 and 64. See Chpt. II on the role of the Straits Trading Company, governmental actions during credit squeezes, etc.

Penang.[33] Largely in consequence of the growth of infrastructure, Malaya had by this time (1903) emerged as the largest tin producer in the world--her output exceeding the rest of the world combined.[34]

Subsequent years saw the extension of the Malayan rail network--principally into Johore. Tampin was connected by rail to Gemas (1906), Gemas to Segamat (1908) and Segamat to Johore Bahru (1909). Railway ferries and coasters were used to overcome the stretches of water separating Singapore and Penang Islands.[35]

In the years leading up to the Depression all of the states of the peninsula, with the exception of Trengganu, were brought into the rail network. Padang Besar on the Thai frontier was linked to Prai. From Gemas, the line was extended to Kuala Lipis and, by the beginning of the Depression, to Sungei Golok and Tumpat.[36] The maps on page 136 detail the developments which have been described:

Annually rising passenger and goods traffic (with some slight exceptions) from the 1880's to the late 1920's meant consistent budget surpluses for the Malayan railways as shown in the table on pages 137 - 138. The period between 1884 and 1937 saw a total expenditure of $228 million in building up Malaya's rail network.[37]

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[33] Lim, loc. cit., and Courtenay, loc. cit.

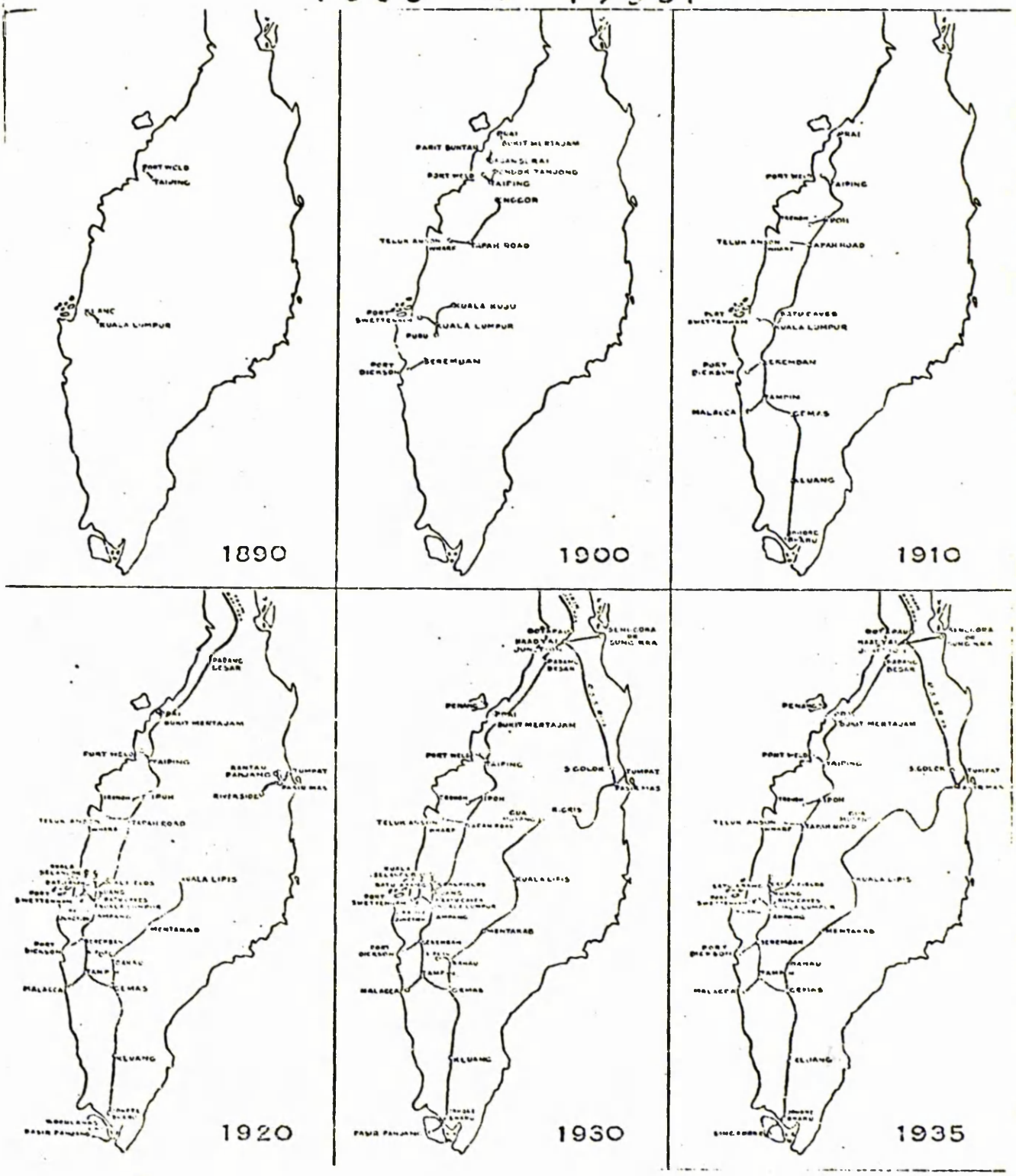
[34] See figures in Chapter II.

[35] Lim, loc. cit.

[36] Courtenay, op. cit., p. 135 and Lim, op. cit., 273.

[37] Lim, op. cit., p. 275. In some years, for example 1920, over a third of the government's total revenue was spent on railway construction. About three-fourths of the expenditure came from ordinary revenue. The balance came from loans and railway working surpluses.

FEDERATED MALAY STATES RAILWAY CONSTRUCTION[38] 1885 TO 1935.



[38] Fifty Years, op. cit., p. 2.

STATEMENT OF GROSS EARNINGS 1894-1934
and
NET CASH SURPLUS/DEFICIENCY 1885-1934.

Year	Passenger Train Traffic		Goods Train Traffic		Miscellaneous Receipts	Total Gross Earnings	Net Cash Surplus
	No. of Passengers	Receipts $ c.	Tonnage	Receipts $ c.	$ c.	$ c.	$ c.
1885 to 1893							1,659,162 73
1894						909,721 14	459,258 01
1895						1,237,714 46	590,711 14
1896						1,228,294 46	560,719 36
1897						1,220,378 12	519,285 31
1898						1,304,049 43	481,703 02
1899						1,605,767 60	748,423 27
1900						2,087,921 67	1,035,368 83
1901						2,340,821 45	1,079,117 90
1902						2,874,263 94	1,338,293 32
1903	4,173,242	1,915,020 95	460,348	1,391,430 77	379,382 42	3,685,834 14	1,881,685 11
1904	4,797,609	2,011,609 61	499,874	1,518,247 35	75,172 29	3,605,029 25	1,474,911 07
1905	5,514,449	2,179,463 82	514,226	1,645,892 39	115,242 48	3,940,598 69	1,663,048 15
1906	6,171,596	2,565,969 78	589,580	1,921,855 53	76,274 68	4,564,099 99	1,572,337 51
1907	6,772,340	2,879,190 54	616,287	2,136,033 48	185,686 99	5,200,911 11	1,553,617 74
1908	6,391,840	2,611,307 61	596,385	2,058,812 24	396,033 30	5,066,153 15	1,609,130 60
1909	7,262,830	2,594,862 99	624,850	2,105,848 78	487,398 59	5,188,110 36	1,488,343 34
1910	9,034,529	3,180,846 81	653,663	2,273,519 65	414,140 22	5,868,506 68	2,247,073 79
1911	10,347,896	3,932,878 92	780,780	2,685,989 31	439,820 80	7,058,689 03	3,281,274 91
1912	11,589,273	4,839,311 36	988,416	3,191,924 23	389,781 28	8,421,016 87	2,666,345 23
1913	13,143,659	5,514,531 90	1,172,794	3,718,554 25	315,287 85	9,548,374 00	2,707,696 23
1914	11,974,745	5,045,850 92	1,140,253	3,685,096 21	342,812 62	9,073,759 75	2,029,187 22
1915	11,899,028	4,890,247 83	1,100,381	3,692,046 49	468,948 85	9,051,243 17	2,636,397 93
1916	14,741,066	6,542,731 99	1,267,031	4,145,449 74	928,514 77	11,616,696 50	4,027,228 54
1917	12,037,941	7,614,177 37	1,293,404	4,654,302 14	921,348 37	13,189,827 88	4,168,322 06
1918	9,356,880	6,957,872 67	1,449,973	5,229,520 77	919,119 23	13,106,512 67	3,399,358 19
1919	10,176,029	8,164,014 19	1,578,757	5,702,279 12	1,091,175 22	14,957,468 53	3,310,446 62
1920	13,401,532	9,899,363 20	1,683,562	6,122,562 71	1,294,607 78	17,316,533 69	563,185 49

(cont.)

Year	Passenger Train Traffic		Goods Train Traffic (cont.)		Miscellaneous Receipts	Total Gross Earnings	Net Cash Surplus
	No. of Passengers	Receipts $ c.	Tonnage	Receipts $ c.	$ c.	$ c.	$ c.
1921	10,551,115	7,765,904 40	1,542,218	7,103,575 70	1,328,945 93	16,198,426 03	501,552 08
1922	8,439,333	6,212,533 36	1,669,399	6,401,153 34	1,202,637 32	13,816,324 02	2,004,005 07
1923	10,656,384	6,686,229 50	1,845,827	6,657,767 56	1,331,108 86	14,675,105 92	1,710,348 85
1924	10,814,586	6,603,910 89	1,862,866	8,005,717 88	1,600,573 13	16,210,201 90	3,278,427 81
1925	12,552,621	7,678,808 03	2,031,352	9,141,341 69	1,923,202 51	18,743,352 23	4,770,316 13
1926	14,555,190	9,833,335 98	2,259,005	9,428,593 08	2,378,615 23	21,640,545 29	6,427,444 78
1927	14,171,105	10,125,026 33	2,463,185	10,188,463 19	2,743,025 21	23,055,514 73	3,606,011 96
1928	13,475,070	9,192,275 97	2,508,476	10,363,147 84	2,792,135 73	22,347,559 54	2,591,708 60
1929	14,087,281	9,381,145 42	2,618,234	11,223,488 53	2,726,984 48	23,331,618 43	7,371,321 85
1930	11,773,129	7,977,885 02	2,159,536	8,790,022 08	2,504,996 26	19,272,903 36	4,183,104 80
1931	7,229,106	4,983,085 69	1,375,454	5,854,954 82	2,074,538 51	12,912,579 02	*319,083 78
1932	5,309,799	3,685,749 88	944,133	4,037,964 59	1,760,144 39	9,483,858 86	*1,496,996 06
1933	4,615,883	3,121,302 29	890,632	3,988,231 18	1,927,242 84	9,036,776 31	*2,039,909 57
1934	5,498,159	3,958,677 37	1,187,041	5,256,108 69	2,069,361 38	11,284,147 44	1,574,757 48
						Net Surplus	84,914,642 62

[39] Lim, op. cit., p. 275.

*deficiency

By 1939, route mileage of the F.M.S. Railways has reached 1,068 miles. There existed 213 stations and 93 halts. Revenue from railways, wharves and ferry services stood at $14,805,358 for the year while the number of passenger journeys was 11,462,802. Among the principal commodities carried were general merchandise, "rice, bran and padi," rubber, "coal, coke and firewood," tin and other minerals.[40]

The early Twentieth Century also witnessed an expansion of Malaya's road network. Earlier on the complementariness of roads and railroads in initiating and shaping the early growth of the tin industry was discussed. After the turn of the century with the increasing use of automobiles, road development was accelerated and an additional pattern emerged. Many of the main roads were built parallel to the main railway lines and thus roads came to exist in a competitive as well as complimentary relationship with railways. The main developments in road construction up to the Depression may be summarized beginning with recollection that in 1874 only two cart roads existed and that road construction in the earlier period was basically designed to link the tin fields to water and rail transport. The year 1899 marks the first transversing of the Peninsula horizontally with a road linking Kuala Lumpur and Kuantan, the capital of Pahang. In 1911, seven years after Prai and Malacca had been linked by rail, the two communities were linked by road. Subsequent years leading up to the Depression saw extension of the

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[40] F.M.S. Railways, Railways Report for the Year 1939 (Kuala Lumpur: F.M.S. Government Press, 1940). See introductory page and pages 1, 10 and 15 for details on the respective items mentioned above.

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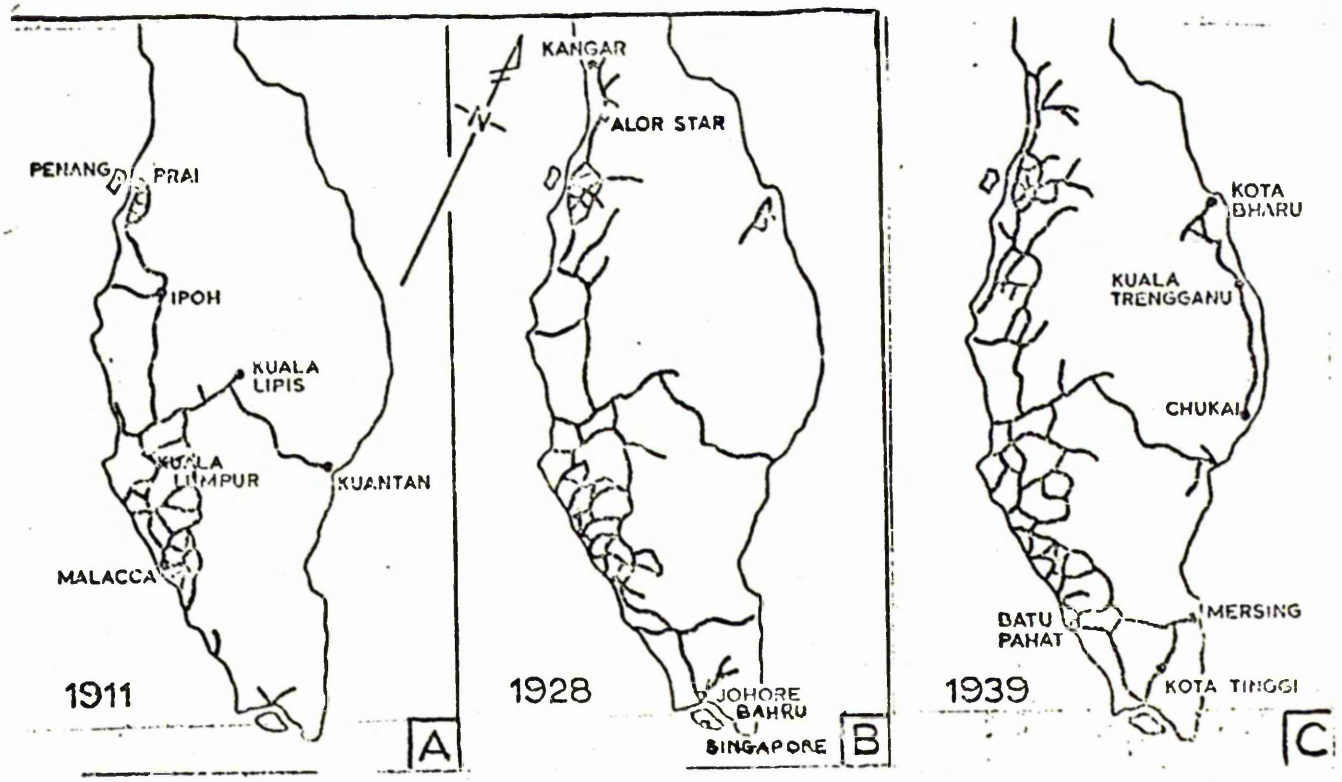
GROWTH OF MALAYAN ROAD NETWORK, 1911-42



Source and Note. Based on Ooi Jin Bee, op. cit. 359; Federation of Malaya, *Official Year Book, 1962*, 520; Federation of Malaya, *Second Five Year Plan*, 9-10 and 36-8 and other references.

road system to more remote parts of the Peninsula such as Alor Star and Kangar (the capitals of Perlis and Kedah respectively). By 1928, there was a road running from Singapore to Perlis. By this time the the western states enjoyed a "well-developed road network."[42] Road construction during the Depression decade was largely in the under-developed states of the East, which up to this point had lagged far behind.[43] The above maps (page 140) detail the growth of road construction in the early part of this century.

[41] Lim, op. cit., p. 276.

[42] Ibid., p. 278.

[43] In contrast to road construction, rail construction was nil during the Depression.

The relationship between Malaya's second large export industry, rubber, and infrastructure was as intimate as that between infrastructure and tin. The growth of the rubber export industry, described in Chapter III was very rapid and was aided greatly by the Straits Ports. They were the gateways through which Tamil labourers entered Malaya.[44] The ports also provided the shipping services and the banking and commercial services. The agencies or merchant houses were located in the port cities and through them European capital was invested in Malayan plantations.[45]

Malaya's first rubber plantations were located in the areas of the old coffee estates. From these areas rubber spread onto unoccupied land within reach of the lines of communication originally developed to serve the tinfields. Thus "the Klang Valley with its road and rail links from Kuala Lumpur to Port Swettenham was the first major axis of rubber development in Selangor and away from this axis rubber planting was tied to the coastal roads out of Klang and to the north-south transport lines along the foothills from Kuala Lumpur."[46]

The pattern was repeated in other states. In Perak, planting was along the transport axis through Batang Padang, Batu Gajah and Ipoh. In Negri Sembilan, rubber planting was similarly related to the transport axis. Not surprising, in view of the pattern of Malaya's infrastructural development, is the fact that eighty percent of the total

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[44] This is described in Chapter IV.

[45] The functions of the agencies are described in Chapter III.

[46] Courtenay, op. cit., p. 101.

area planted with rubber in 1906 was in the three western states of Perak, Selangor and Negri Sembilan. [47] When the rail network was extended to other states, as earlier described, so too was rubber planting. For example, when the railroad was extended from Gemas to Segamat (1908) and Segamat to Johore Bahru (1909), "rubber followed and with rubber the Johore economy soared to a level of development that left many other Malayan states far behind." [48] The area planted with rubber in Malaya at the end of the 1930's would be in close geographical proximity to road and rail services--as shown in the map on the following page.

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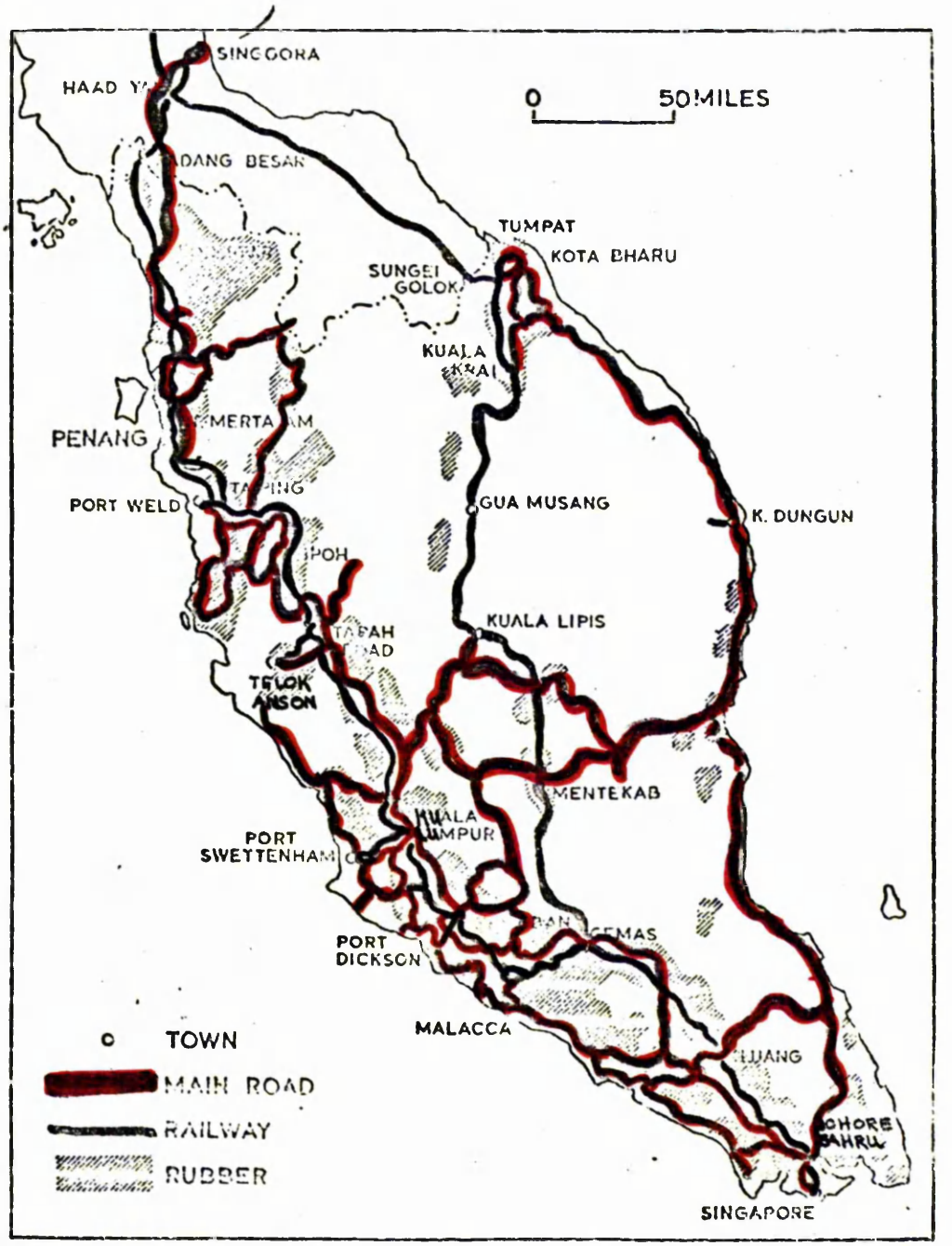
[47] Ibid.

[48] Lim, op. cit., p. 273.

MALAYAN RAILWAY NETWORK, MAIN ROADS AND RUBBER AREAS, 1963. [49]



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[49] Ibid., p. 272. Though this map is from 1963, it shows very accurately the area planted with rubber in the first forty years of the century (primarily the first twenty) and the geographical proximity of those plantings to road and rail services.

PART II

Chapter VI

Malayan Dualism in the 1920's and 1930's

1920 is chosen somewhat arbitrarily as the year by which Malaya's export industries had reached relative maturity. The by now capital-intensive tin industry was shared by Chinese and British while the labour-intensive rubber industry was shared by estates and smallholders. Immigrant labour and infrastructural policy, as earlier described, had been of great importance in building the two export industries that dominated the economy.

Coexisting with the export industries in 1920 was a subsistence sector which had been changed very little by the events of recent decades. Some growth was registered in rice production--growth that would become considerably more impressive after the 1929 Reorganization of the Agriculture Department. The growth of tin and rubber had induced the growth of some service, secondary and tertiary industry such as the railway and tin smelting. (The earlier mentioned Straits Trading Company was important in the latter. Further examples of service, secondary and tertiary industries are forthcoming.) Industries that utilized local products or in which economies of scale were virtually absent also provided employment for a good number. Yet the money economy in Malaya of the early 20's had grown to a very limited extent being largely confined to those strips of land along the railways and roads and in the Straits ports. [1]

The characteristics of growth in a dualistic economy were spelled out in Chapter I. Growth is highly confined in a geographical sense and tends to be largely confined to the export industries. Due to the relative autonomy of the sectors, growth "touches" a relatively small part of the population. Being a

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[1]For discussin of an analogous situation in Northern Rhodesia, see Robert E. Baldwin, Economic Development and Export Growth (Berkeley: University of California Press, 1966), p. 193.

relative concept the severity of the dualistic condition can be gauged by the extent to which the economy experiences agglomoration of commercialization, strong (or exclusive) orientation of certain sectors toward world markets and concentration of population.[2] The Malayan economy as it had evolved up to the early 1920's was clearly dualistic as defined in this study. Beyond this, as analysis of employment patterns of Malays, Indians and Chinese will confirm, Malaya had by 1920 developed a special sort of "segregative dualism".[3]

The purpose in this section is to describe in detail the economic dualism that existed in the early twenties, and to determine to what extent Malayan dualism persisted through the 1920's and 1930's. This involves, through the analysis and disaggregation of the extensive industrial and occupational data of the 1921 census, a drawing up of Malaya's economic profile and an attempt to document and describe changes in that profile over the twenty year period.[4] The occupational and industrial census data being analyzed covers the period of rapid growth leading up to 1920, a decade of considerable prosperity in which restriction schemes began to be felt (the twenties) and a decade of depression (the thirties). No attempt is made to analyze economic developments during World War II. The characteristics of the production functions of the export sector and the role of infrastructure provide the basis for generalization in this disaggregative approach.[5]

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[2]These and other characteristics are discussed at greater length in Chapter I.

[3]This will be further commented on below.

[4]How this is to be done and the problems involved are discussed at length below.

[5]See the comments in Chapter I regarding the disaggregative approach to be followed in this study.

The tables on pages 148 and 149 show--though in a rather crude and general way--the importance of various industrial and occupational categories in Malaya at the census dates. Having been complied from the census data, the tables are basically a summary of the somewhat long description of the Malayan economy set forth in this chapter.[6]

The most salient feature of Malayan dualism in 1921 was the extent to which rubber and tin predominated. The table on page 150 shows the importance in the years leading up to the 1920's of the rubber and tin export industries in terms of Malaya's total exports and in terms of providing government revenue through export duties as well as growing railway receipts.

Malaya's population in 1921 was 3,358,054.[7] The Straits Settlements' population was 883,769; the F.M.S.'s was 1,324,890 and the U.M.S.'s was 1,149,395. This represents rapid population growth in which immigration of labourers to work in rubber and tin was an important factor.[8]

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[6]The attempt was made in constructing these tables to come up with a good operational definition of the "work force" of Malaya--something less broad than total population. This was impossible for several reasons. The first is the vagueness or multiplicity of the occupations of Malaya's population. A Chinese trader, for example, might run a shop while at the same time be the proprietor of a billiard saloon or liquor shop, plant rubber and open a tin mine of his own. A Malay rice planter might have one or several subsidiary occupations. Further discussion of this point is forthcoming. The possibility of using the adult male population, rather than total population, was also entertained and rejected. That would ignore the large number of women engaged both in rice planting and on estates, in petty trading and shopkeeping. See pages 120 and 134 in the 1921 Census regarding these matters. Further comment regarding women working in

(Footnotes continued on next page.)

Malaya's tin production in 1920 stood at approximately 35,000 tons representing output of approximately £10,317,000.[9] In 1921, the physical volume of output was again about 35,000 tons--though the pound sterling amount was approximately half of what it was in 1920.[10] In 1920, 14.6% of Malaya's total export income derived from tin.[11] In the Federated Malay States, where tin-mining was concentrated, 75,246 people were employed in mining and quarrying and of this number, 70,553 were engaged in tin mining.[12]

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[6](Cond't) rice cultivation is forthcoming in this chapter. Had the census reports broken down population by age groups , some less inclusive measure--say, population age 15 to 50--might have been used. Unfortunately no such age breakdown is provided.

[7]The Census of British Malaya, 1921, (London: Waterlow and Sons, Ltd., 1921), p. 149.

[8]The respective rates of increase between 1911 and 1921 for Malaya as a whole, the Straits Settlements, the F.M.S. and the U.M.S. were 25.64, 23.77, 27.76 and 24.71 percent. Calculated from Ibid.

[9]Sir Lewis Fermor, Report Upon the Mining Industry of Malaya (Kuala Lumpur: Printed at the Government Press, 1939) pp. 58-59. These figures are actually those of exports. Almost 100% of Malaya's tin production was exported.

[10]The actual figures reported in Fermor, for 1920 and 1921 respectively, were 34,935 tons, £10,316,713 and 34,491 tons, £5,748,748.

[11]Lim Chong-Yah, Economic Development of Modern Malaya (Kuala Lumpur: Oxford University Press, 1967), p. 325.

[12]Census, 1921, op. cit., p. 240.

Number of persons employed in tin, etc. compared to total population (F.M.S.)

	1921		1931		1947	
Tin/Population:	70,553/1,324,890	= .0533 = 5.3%	77,348/1,713,096	= .0452	44,146/2,182,572	= .02
Rubber/Population	321,875/	= .2429	289,135/	= .1688		
Woodworking/Pop.	14,911/	= .0112	16,193/	= .0095	17,747/	= .008
Coal/Population	1,847/	= .0014	1,880/	= .0011		
Transport & Communications/Pop.	33,633/	= .0254	39,180/	= .0229	26,640/	= .012
Railways/Pop.	8,740/	= .0066	8,698/	= .0051		
Private Domestic Service/Population	25,447/	= .0192	34,807/	= .0203		
Public Administration & Defense/Population	23,014/	= .0174	11,691/	= .0068	58,977/	= .027
Commerce & Finance/Population	60,544/	= .0457	70,030/	= .0409	75,937/	= .035
Rice/Population	129,210/	= .9075	85,326/	= .0498		
Forestry & Wood-cutting/Pop.	11,221/	= .0085	12,140/	= .0071		
Manufacture of Metals Machines, Implements, etc./Population	9,654/	= .0073 = .7%	17,826/	= .0104	17,503/	= .008

Number of Persons Employed in Transport and Communications, etc. Compared to Total Population (S.S.)[13]

	1921		1931		1947
Transport & Communication/Population	67,308/883,769	= .0762	67,584/1,114,015	= .0607	
Railways/Population	1,953/	= .0022	1,671/	= .0015	
Manufacture of Metals, Machines, Implements, etc/Population	16,223/	= .0184	17,826/	= .0160	
Woodworking/Pop.	15,893/	= .0180	19,352/	= .0174	
Commerce & Finance/Pop.	78,895/	= .0893	102,249/	= .0918	
General & Export Trading/Pop.	23,229/	= .0263			
Private Domestic Service/Population	29,080/	= .0329	37,822/	= .0340	
Public Administration & Defense/Population	14,157/	= .0160	10,476/	= .0094	
Rice/Population	32,829/	= .0371	11,453/	= .0103	

[13] Calculated from The Census of British Malaya, 1921, 1931, and 1947 (London: Waterlow and Sons, Ltd). Comparability of the data presents a serious problem and this accounts for the omissions in the table. For example, in the 1947 census, there is a figure for "agriculture" but no separate figures for rubber, rice, etc. In order to make the 1947 data as comparable as possible, figures for the various occupational categories were added for the four states of the old F.M.S. and compared to the population of those four states (Perak, Selangor, Negri Sembilan and Pahang).

FEDERATED MALAY STATES-- GENERAL RETURN OF REVENUE, EXPENDITURE, TRADE [14]

Year	Revenue $	Expenditure $	Trade Imports $	Trade Exports $	Exports of Tin and Tin-ore (in Tons)	Duty on tin $	Exports of Rubber (in Tons)	Duty on Rubber $	Land Revenue and Land sales $	Railway Receipts $
1913	44,332,711	47,287,581	86,409,157	148,669,498	50,126	10,729,888	23,720	1,395,923	2,790,451	9,469,4
1914	37,309,943	55,010,037	72,140,005	122,962,929	49,042	7,046,869	31,012	1,334,245	2,562,436	9,133,9
1915	40,774,984	42,838,631	60,015,935	161,838,118	46,766	7,235,086	56,782	2,401,914	2,597,836	9,187,5
1916	51,121,856	31,966,581	69,621,113	219,943,686	43,870	7,903,785	62,813	3,851,815	3,068,766	11,616,6
1917	65,553,186	40,878,746	73,261,725	271,485,389	39,833	9,331,288	80,022	4,914,781	3,308,464	13,189,8
1918	68,448,862	45,286,910	74,750,746	223,066,282	37,370	13,141,841	78,389	2,254,556	3,657,454	13,106,4
1919	72,135,075	70,676,961	118,854,965	279,135,105	36,934	9,944,177	106,453	4,883,123	3,533,829	14,957,4
1920	72,277,146	100,433,471	170,522,123	288,715,698	34,934	12,203,531	101,330	4,443,100	4,004,095	17,316,5

[14] Adapted from the Colonial Office Report, 1938 (London: HMSO), p. 116.

Rubber was Malaya's second great export industry. Malaya's rubber production in 1920 was 174,300 tons. In 1921, the production was 151,000 tons.[15] Extreme fluctuation also characterized rubber--both in terms of rubber production and rubber prices. In 1920, 30.6% of Malaya's total export income derived from rubber and thousands found employment in this export industry. [16] The 1921 Census Report does not show the number of labourers in rubber separately though it reports 490,322 people engaged in agriculture. Included in that figure are 321,875 in "other or undefined planting." Undoubtedly, the great bulk of those were employed in rubber. [17] Parmer reports that the F.M.S. Estate Labour Force in 1920 was 216,588.[18]

A third important "industry" and source of livelihood for hundreds of thousands was rice planting. The concomitant production of export products and rice and other subsistence items constitutes one important duality in the Malayan economy. As rice planting and other activities in the subsistence sector will be topics of recurring interest

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[15]Lim, op. cit., p. 328.

[16]Ibid., p. 325.

[17]Census, 1921, op. cit., p. 240. This would include both estates and smallholders.

[18]J. Norman Parmer, Colonial Labor Policy and Administration (Locust Valley, New York: J.J. Augustin Inc., 1960), p. 273.

in this study, the techniques and economics of rice planting in the 1920-40 period is here described at some length.

The main rice areas of Malaya in 1920-40 were (and still are) the Northeast coastal plains centered around the Kelantan Delta and the Northwest coastal zone from Perlis southward to the Krian plain of Perak.[19] In addition there were small units of padi-land scattered along the bottoms of valleys in Malacca, Pahang, Negri Sembilan and Upper Perak and along the flood plains of large rivers like the Perak and Pahang. As one facet of government agricultural policy was the preservation of Malays in their traditional way of life, large areas of the country-- areas of existing or potential padi-land-- were designated as Malay reservations. The map on page 153 shows the area set aside as Malay Reservations:

Though a few states (Kedah, Kelantan and Perlis) produced surpluses for export, the rice produced in Malaya was insufficient to feed the rapid population growth that attended the growth of the export industries. The amount of rice that the state of Perak, an important tin and rubber state, imported annually was twice as high in money terms in 1920 as it had been in 1897.[20]

Rice planting was based on the traditional two to four acre sawah or wet rice plot. It was often accompanied by kampong cultivation.

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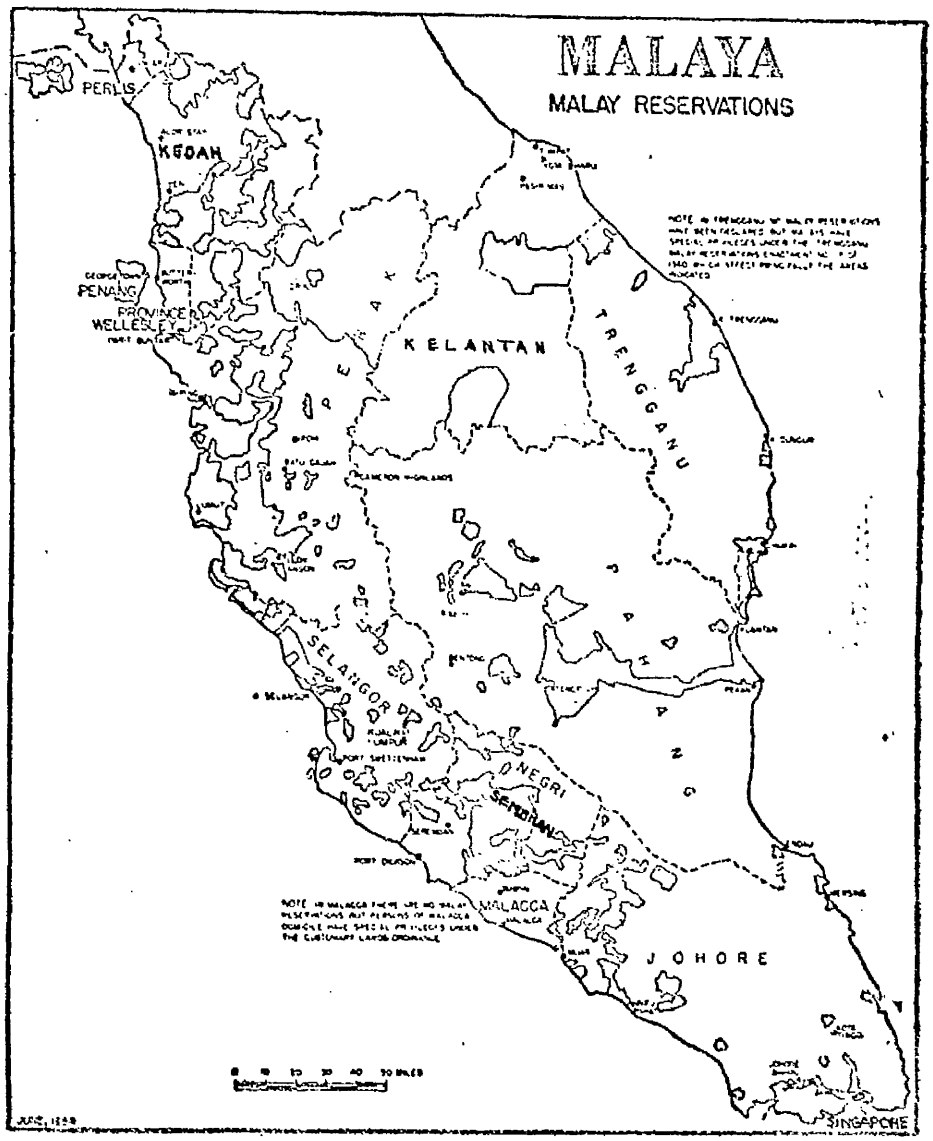
[19] Ding Eing Tan Soo Hai, The Rice Industry in Malaya, 1920-40 (Singapore: Malaya Publishing House, Ltd., 1963), pp. 3-4. The following description of the economics of rice draws heavily from Tan's study.

[20] Ibid., p. 3. In 1897, rice imports totalled $3 million and in 1920, $6 million. During this early period some areas also increased their acreage and output by large amounts. As a result of the Krian Irrigation Scheme, the rice acreage in Perak . . . increased from 11,000 acres in 1896 to 75,000 acres in 1910." After being almost totally neglected for a quarter of a century, irrigation would come to again be an important part of agricultural policy in the 1930's.

APPENDIX C [21]



[21] Ibid., Appendix C, p. 40. This policy of making rice-growing a Malay preserve had important long-term implications for Malaya's economic development which will be further discussed in Chapter XI.

Sir Cecil Clementi, the High Commissioner, described the kampong-sawah combination in 1932 as the "ideal homestead." Kampong cultivation usually involved the growing of coconuts and other fruit trees, the growing of vegetables and raising ducks and chickens to provide for the supplementary diet requirements of the padi planter and his family. As Tan notes, "This form of economic activity was catered for in all new rice areas." [22] Further supplementary economic activities were the gathering of forest products, fishing and rubber cultivation.[23] Many padi planters were also part-time blacksmiths, carpenters, weavers and "medicine men" but their principal source of livelihood was the sawah. The difficulties of statistical treatment of such economic activity are obvious.

The cycle of activity in the sawah involved the cultivation and harvesting of one crop of padi a year and was quite involved. Planting had to be undertaken at the right time and the date of sowing also depended on the availability of water and prevailing climatic conditions. Coordination of the cultural activities was desirable to minimize damage by pests and diseases and to facilitate the use of irrigation water. Such coordination was sought through the office of the "pawang padi," a "Malay magician who specialized in the care of padi fields," padi planting rituals and various local rules.[24] The pattern of cultural methods was basically the same throughout the Peninsula with some variation due

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[22] Ibid., p. 50.

[23] These smallholdings of rubber came to be very important in Malaya's total rubber production and will be fully discussed later.

[24] Tan, op. cit., p. 249. To some extent, after the advent of British rule, the functions of the pawang padi in determining and enforcing planting dates was superceded by the Agriculture Department, the Land Office and the District Office. But, as Tan notes, "Through fear, tradition and ignorance, many padi planters continued to adhere to the observations of the pawang," p. 10.

to local conditions of soil, water supply and the economic status of the padi farmer.

> "Having sown the nursery beds, the farmer ploughed and harrowed the field with the aid of a buffalo as for example in Kedah, Perlis, Kelantan and Malacca. Where the soil was too soft for the use of a buffalo, as for instance in Krian and Pahang, the tajek was used. Harvesting usually began about eight months after transplanting.
>
> Reaping was normally done by hand with the aid of a small knife or tuai. The grain was plucked ear by ear owing to the superstition that this method would not disturb the soul of the rice. By this method a woman took as many as 8-10 days to harvest an acre of padi. In the northwest where padi is a commercial crop, a hired labourer using a sickle harvested at the rate of three-quarters of an acre a day. The harvested sheaves were then thrashed in home-made buckets or tubs to separate the grain from the stalk. The padi was then dried in the sun before being stored."[25]

Having planted the crop, there was no guarantee of a harvest. The risks involved included the depredations of pests and too much or too little rain. Rats were the pests most responsible for damage. An editorial in the Malayan Agricultural Journal in 1931 estimates the annual loss of padi through rats as sufficient to feed 12,000 people each year.[26] During drought nurseries could not be planted and the land was too hard to be ploughed. Heavy rains or floods caused the grain to germinate in the wet fields. "Heavy rain just before harvest at times caused heavy loss of crops. In Krian, for example, 30 percent of the crop or 15,500,000 gantangs were lost in 1921 due to this."[27]

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[25] Ibid, p. 10.

[26] Ibid., citing Editorial, Malayan Agricultural Journal, Vol. XXVII, No. 2, 1939, p. 39.

[27] Ibid., p. 11. See pp. 10-11 for further expansion on the risks of pests and weather. Tan contrasts the "ill-defined character of the local seasons" in Malaya with the "marked seasonability in rainfall" in Burma and Siam.

"In most cases the farmer worked on land belonging to a landlord on an agreement based on either a fixed rent (cash or kind), crop sharing, lease, loan or mortgage." [28] Crop sharing was common in this type of non-cash economy with agreement based on either an equal division of the produce and an equal bearing of the cost of hiring a buffalo and other expenses or the owner bearing all the expenses and the worker being paid one-third of the produce (or vice versa).

The "family size" sawah was two to four acres. A farmer and a family of, say, five persons could manage the entire process of ploughing, planting and harvesting. The men did the heavier work of preparing the field, the women the transplanting and harvesting. On larger farms, contract labour was hired, on a cash or crop-sharing basis, for the ploughing, transplanting and harvesting processes.

Rent or labour charges were the main costs involved with little other expense incurred in padi production. Seeds were saved from the previous year's harvest with shortages met by buying or borrowing from neighbours. During times of crisis (such as the 1927 floods) seeds were distributed free by the Agriculture Department, which also distributed high yielding strains of padi on an exchange or cost-price basis to promote their wider use.[29] Padi requires less nutrient than the other important cereals. Most of the nutritional requirements of the

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[28] Ibid., pp. 11-12. The land was alienated by the government. Land policy is described in detail in Chapter IX. It, along with irrigation, became one of the cornerstones of government policy after the 1929 reorganization of the Department of Agriculture.

[29] Ibid.

plant are supplied by the irrigation water and the silt carried in the water. Very little fertilizer was used in Malaya.[30]

As the preceding discussion makes clear the self-sufficient and traditional nature of padi planting makes it difficult to estimate costs of padi production. The difficulty is compounded by the variation from state to state in land tenure, quality of land, rents, terms of hired labourer, etc. and the general lack of reliable statistics. Still some estimates of padi production have been attempted. Jack estimated the cost of cultivating and harvesting one acre of first class land (yielding 400 gantangs or more) by contract labour in Krian in 1923 as follows:[31]

		$ cts.
1.	Preparation of nursery and sowing of same.	0.80
2.	Seed, 2 gantangs at 12 cts. per gantang	0.24
3.	Cutting grass and weeds.	4.50
4.	Removing weeds.	4.50
5.	First and second transplanting.	1.50
6.	Final transplanting.	6.00
7.	Weeding.	3.00
8.	Rent and water rate.	3.80
9.	Harvesting, 15% of crop of 500 gantangs padi at 11½ cts, per gantangs.	8.63
	TOTAL EXPENDITURE	32.97
	Gross returns at 500 gantangs at 11½ cts., per gantangs.	57.50
	Profits per acre.	24.53

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[30] "On poorer soils," notes Tan, Ibid., "yields could be increased by 30 percent by the use of fertilizers, but these were in any case too expensive for the subsistence farmer," p. 13. Some local manure (consisting of mixed burnt cowdung, fish offal, leaves and twigs) was used as was bat guano bought at 3 to 8 cents a gantang. In places where intensive cultivation is practised, for example Japan and China, extensive use of fertilizers is essential to obtain high yields.

[31] Ibid., p. 13, citing Jack, Rice in Malaya, 1923, p. 44.

On second class land in Krian (250-399 gantangs yield), the profit was approximately $7.00 per acre when employing contract labour. Third class land (below 250 gantangs yield) could be cultivated profitably by owners in good years but not when contract labour was employed. "The cost of working an acre of padi varied in different districts, but $32 was the minimum required for efficient cultivation." [32]

In terms of cash income, rice planters in Malaya may be thought of as belonging to an underprivileged group. Yet they were nowhere really destitute. They also had job security and were "their own masters compared to say the plantation labourer who worked for wages."[33] Indeed the whole business of estimating profit or income of padi planters in terms of cash is deceptive.

> "Jack, in his report on Trengganu stated that the average yield there was only 150 gantangs of padi an acre. Yet on the average a farmer could produce enough rice for himself and his family for a year by personal labour limited to about 50-60 days of not more than five hours each. Once this food crop was assured, the cultivator had some 300 days of the year at his disposal for undertaking other employment to supplement his income and food supplies."[34]

Many rice planters realized supplemental income in kind through kampong cultivation as earlier described. Many supplemented their cash income by growing rubber which fortunately could exist in mutualistic relationship with rice and was an ideal smallholder crop. The growing of rubber for export by the indigenous population was one of the

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[32] Ibid., p. 14, citing Jack, Report of Visit to Trengganu, 1928, pp. 19-20.

[33] Ibid., p. 14, citing E.B. Copeland, Rice (London: 1924), p. 337.

[34] Ibid.

repercussions suggested in the analytical framework. It was a very portentous development in the Malayan economy and a topic to which we'll return subsequently.

Having described tin, rubber and rice as Malaya's three main industries, we next turn to disaggregation and analysis of censal data on Malaya's other industries and occupations. The structure of employment in Malaya's various industries in 1921 reflects well the sectoral composition of output just as changes in employment, as revealed in later census reports, may be said to reflect changes in the sectoral composition. Fortunately, extensive data on occupation and industry are provided in the 1921, 1931 and 1947 Census Reports. The approach suggested here is thought to be the best possible in view of the available data, yet it is not without some difficulties. For numerous reasons, it is possible that employment or occupation may be understated or overstated. To take one example, the 1921 Census Report, in discussing agriculture, says that "the figures are probably under rather than over stated: When once the ploughing and preparation of the soil are finished, most of the work in the rice fields, especially as the harvest approaches, is done by women, who in so many cases are returned as having no occupation beyond their ordinary household duties."[35]

Another problem in working with the censal data is the "vagueness or multiplicity of the occupations of the inhabitants. This was already mentioned in reference to Malay rice planters and in discussing the difficulty of arriving at an operational definition of the work force.

> "A small Chinese trader will sell in his shop all manner of articles, from milk chocolate to mangles; not only so but in the smaller towns he probably buys rubber, is the proprietor

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[35] Census, 1921, op. cit., p. 114.

> of a billiard saloon or liquor shop, and has planted a small rubber estate or opened up a tin mine of his own. Again, a Malay may own a stretch of "sawah" which he plants up with rice every year, an acre or two planted with rubber and, round his house, an orchard of coconuts and other trees, the fruit of which he sells; he may also own a bullock cart which he drives for hire and, if he lives on the coast, a fishing boat and nets. It is in many cases a matter of real difficulty for an individual to decide which of his occupations is the principal one, and which are subsidiary ones, and it is impossible to lay down a hard and fast rule for the guidance of enumerators." [36]

Another difficult problem is treatment of subsidiary occupations such as pig rearing and poultry farming. Almost all Chinese market gardeners in the 1920's kept a pig or two while just about every Malay rice planter kept chickens. The quoted census figures, however, represented largely those who confined themselves to stock and poultry farming. [37]

In using the census data some judgement and discretion is thus obviously required. On encountering large items such as "other or multifarious agricultural industry," reasonable assumptions can be made. Often the way in which the data is presented makes possible such assumptions and judgements with a high degree of confidence. Otherwise, they are not attempted in this study.[38] Rendering the censal data comparable can also present a problem in that different schemes of classification are used in the 1921, 1931 and 1947 census reports. Sometimes, the changes are very minor like calling an activity by a slightly different name. Sometimes comparability is made more difficult because the number of occupations or industries listed is changed. Again, reasonable assumption can often be made on analysis of the data. Expansion of the

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[36] Ibid. [37] Ibid., p.115.

[38] Census, 1947, op. cit., see p. 97 re this difficulty. An example of a "reasonable assumption" can be provided from the 1921 Census Report. As the report had already provided a figure on those employed in rice, a large percentage of the 321,875 people in "other or undefined planting" can be assumed to be in rubber.

classification scheme, of course, has the advantage of helping to break down the large residuary "other or indeterminate" groups which appear in the census reports. [39]

Yet even with these criticisms the censal data are probably reasonably accurate and improvements are made in each subsequent census. The 1921 Census Report observes that "The similarity of the proportions engaged in agriculture in the different Malay states is some testimony to the correctness of the returns." [40] And, the 1947 Census Report continues ". . .if due allowances are made where they are called for, the figures afford a rough picture of the changes which have taken place," between Census Reports. [41] This study proceeds in the spirit that judgements will be made where they are reasonably supported by the data, that comparisons of inter-censal data will be made only when they can be made with a high degree of confidence and that some rearrangement and disaggregation of the data is permissible to render items comparable. [42] These have been the guiding principles in construction of the earlier tables and in discussion of the various items. In the present sketch of dualism in the early twenties, data will be presented for various of the Unfederated Malay States, which were the less developed states. [43]

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[39] Ibid., see pp. 99 and 102 for a discussion of these problems.

[40] Census, 1921, op. cit., p. 119.

[41] Census, 1947, op. cit., p. 103.

[42] Where this is done, it will be made clear either in the text or in a footnote. Quotes around an item such as "mining and quarrying" indicate that the terminology is that of the Census Report. In addition, descriptive terms and phrases such as "tin mining" and "production of tin" will be used without quotes in discussing the census data.

[43] Upwards of eighty percent of the population of Kedah, Kelantan and Perlis (population which was largely Malay) was involved in agricultural pursuits. See Sharom Ahmat, Transition and Change in a Malay State, A Study of the Economic and Political Development of Kedah, Thesis presented for

(Footnote 43 continued on the following page.)

The procedure suggested here should afford insights into the relevancy of the earlier established analytical framework and help to highlight and explain other characteristics of Malayan dualism. For example, it is the contention of the 1947 Census Report regarding the industrial and occupation data that "the variations largely reflect the relative states of development of the several territories." Furthermore, the Report continues, "The distribution by industrial group of the population as a whole . . . though important in itself, masks the considerable variations exhibited by the distributions of the several communities." [44] Thus, as earlier mentioned this analysis will go further and analyze the industrial and occupational patterns of Malaya's major communities. Clearly a special sort of "segregative dualism" evolved in Malaya following the immigration of European, Chinese and Indians to the Malay Peninsula.

Turning to the censal data, "forestry and woodcutting" is an industry that provides an example of the repercussions of the tin export industry's growth in its capital-intensive phase. After the introduction of the dredge, timber (sold standing) was used as firewood. Its extraction and conversion was carried on by Chinese contractors and Chinese labour. [45] Even secondary repercussions may be traced. The 1933 Colonial Office Report observes that:

(Cond't) the degree of Doctor of Philosophy in the University of London, June, 1969 which (although in large part concerned with an earlier period than this thesis) provides a good description of one such economy in which " . . .rice planters worked within a rather tightly-knit subsistence framework," p. 28. The author also notes that the "primary concern" in the early 1900's was to ensure that Kedah retain its Malay identity.

[44] Census, 1947, op. cit., p. 105.

[45] 1933 Colonial Office Report, (London: HMSO, 1933), p. 38.

> "The tramways constructed in Parit and Kroh reserves continued in operation and had a marked effect in stimulating output, of which the installation of a small sawmill at the terminus of the former line is evidence. The tramway in Kroh reserve was extended during the year, mainly by Malay relief labour: its function is to tap a large area of previously inaccessible forest in order to provide a cheap supply of firewood for the Kampar dredges." [46]

Further examples of the repercussions suggested in the analytical framework are provided in the case of coal. The only coal deposits of significance were these of the Batu Arang Coalfield in Selangor. "The coal is of low calorific value and thus not suitable for export, but it is an important source of power for the tin mining industry, and is also used by the Federated Malay States Railways and for other industrial purposes." [47] Between 1915 and 1938 total coal production at Batu Arnag was over 8 million tons.[48] On a yearly basis, approximately one-half of the coal output was consumed by the railroads and one-fourth by the mines.[49] The nexus between the fortunes of the tin industry and coal production was close indeed. In 1928, when Malaya exported 61,935 tons of tin, her coal production was 556,590 tons. In 1932, when Malaya exported only 26,538 tons of tin, her coal production fell to 277,848 tons.[50] In 1921, 1847 people were employed in coal mining in the F.M.S.[51]

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[46] Ibid., p. 40.

[47] Kate L. Mitchell, An Economic Survey of the Pacific Area, Part III, "Industrialization of the Western Pacific," (New York: Institute of Pacific Relations, 1942), p. 181.

[48] 1938 Colonial Office Report, (London: HMSO, 1938), p. 18.

[49] 1933 Colonial Office Report, op. cit., see the figures on p. 24.

[50] The tin figures are from Fermor, op. cit., pp. 58-59. The coal figures are from the 1933 Colonial Office Report, op. cit., p. 24. The price of tin in 1928 and 1932 respectively, as reported by Fermor was £227.4. 8d. and £135. 18. 10½d.

[51] Census, 1921, op. cit., p. 240.

The close connection between the growth of Malaya's export industries and the growth of transport, in particular the railroads, has been examined at length earlier. The growth of the first export industry, tin, induced the growth of a superb rail network which in turn made possible the growth of a second large export industry, rubber. The symbiotic relationship of the railway and the export industries was for years reflected in a high positive correlation between the rail surplus and the price of tin and rubber.[52] The employment repercussions of these developments was profound indeed. In 1921, 8,740 persons worked on the railways in the F.M.S.[53] Jobs in transport and communications were also created in the Straits Settlements as a result of tin and rubber's growth. 1,953 people worked on the railways while an additional 67,308 persons provided transport and communications services such as cartage, shipping service, tug, barge, lighter, boat service, loading and discharging vessels and pulled rikishas.[54] So important was this induced development of transport and communications services that about fifteen percent of the Straits Settlements' working population found employment in this sector. This magnitude reflects the importance of the entrepot function of the Straits ports.

Even in states like Kedah, which was affected much less than the S.S. and F.M.S. by the growth of the export industries, 3,792 jobs

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[52] F.M.S. Railways, Fifty Years of Railways in Malaya, 1885-1935 (Kuala Lumpur: 1935), see the "Statement of Gross Earnings 1894-1934 and Net Cash Surplus/Deficiency 1885-1934," p. 7.

[53] Census, 1921, op. cit., p. 241.

[54] Ibid., see p. 238 for a complete breakdown. Some employments subsumed under the broad category of transport and communications--riksha pulling for example--may of course not be directly related to the growth of tin and rubber. This observation would also apply, quite obviously, to some other categories and sub-categories to be discussed.

were held by people in transport and communications in 1921.[55] In general though, the repercussions so far discussed were of greater import in the F.M.S. and S.S.-- mining being largely confined to the former and transport being important in both-- than in the rest of Malaya.

Another important employment category in the Straits Settlements in 1921 was "manufacture of metals, machines, implements, conveyances, jewelry and watches." The growth of employment here was induced by the growth of the tin industry. Included in the figure of 16,223 people were 552 people employed in tin-smelting which is not a very labour-intensive activity. It would appear that the bulk of the remainder was engaged in the general manufacture of metals, machines and implements, shipbuilding, repairing and marine engineering-- activities closely tied to tin and to some extent to railways and vehicles.[56]

The economic profile of Malaya in the early 1920's can be further sketched by looking at those industries that utilized local products and in which economies of scale were very small or absent. Most notable here was "woodworking." In the F.M.S. in 1921, 14,911 people were employed in woodworking. Of this number 10,901 were engaged in carpentry and 2,697 worked in sawmills.[57] About as many people, 15,893, were employed in woodworking in the Straits Settlements. 10,937 worked at carpentry and 2,427 in sawmills.[58] Woodworking was also of some

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[55] Ibid., pp. 245-246. In Johore and Kelantan, respectively, the figures were 6,539 and 2,705.

[56] Ibid., p. 236. The presentation of the data does not make entirely clear the employment breakdown by categories. Subsumed in this category are also approximately 3,600 people who worked in jewelry.

[57] Ibid., p. 241.

[58] Ibid., p. 237.

importance in the Unfederated Malay States. In Kedah, for example, 1,679 people listed their occupation as wood-working. Of these, 1,123 were in carpentry and 336 worked in sawmills. In Kelantan 1336 were employed in woodworking and in Johore, 2,032. [59] To the extent that general prosperity, as generated by the growth of export industries, induced building, wood-working might also be said to be an induced employment.

Increasing employment in "commerce and Finance" may be said to reflect the growth of a money economy in Malaya. Two sub-categories were "dealing in groceries and provisions, retail" and "hawking and street selling". These were activities without economies of scale that provided many people with employment. 32,673 people in the F.M.S. were employed in the former and 12,915 in the latter.[60] In the Straits Settlements in 1921, the figures for "dealing in groceries and provisions, retail" and "hawking and street selling" were, respectively, 17,077 and 22,338.[61] For Perlis, the respective figures were 400 and 120. In Trengganu, the figures were 1,040 and 1,851 while in Johore the figures were 6,336 and 2,465.[62] Activities in "Commerce and Finance" reflected prosperity or recession in the export industries as well as the growth of the money economy in Malaya.

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[59] Ibid , p. 245. Carpentry was by far the most important sub-category in these states too.

[60] In the census figures, these two categories are subsumed under "commerce and finance." The latter is broken down into dozens of categories such as "dealing in meat: retail," "dealing in books and stationary," etc. The two sub-categories chosen for comment here provided for over 2/3 of the employment in Commerce and Finance-- 43,043 out of 60,544 or 71.09%-- in the F.M.S. and a like proportion in the rest of Malaya. See Ibid., pp. 242-243.

[61] Ibid., pp. 238-239.

[62] Ibid., p. 246.

A sub-category under "commerce and finance" that is of special interest in the Straits Settlements only is "General and Export Trading." This reflects the key role played by the Straits ports in facilitating the inflow of goods and supplies used in the export industries and their role in expediting the outflow of the Peninsula's tin and rubber. 23,229 were employed in general and export trading in the Straits Settlements in 1921.[63]

In 1921, "private domestic service" provided for a large amount of employment. 25,447 people were engaged in the provision of such services in the F.M.S., 29,080 in the Straits Settlements and 2,631 in Kedah.[64]

To round out this discussion of the major industries and occupational categories in Malaya in 1921, "Public Administration and Defense" must be mentioned. A large proportion of the revenue allocated to public administration and defense derived from the export industries.[65] In 1921, 23,014 people in the F.M.S. listed themselves as in this occupational category. In the Straits Settlements, the figure was 14,157, while in Johore it was 4,300 and in Kedah 3,160.

It appears that police account for almost a fourth of the government employees. The large "other government departments" entry, it may reasonably be speculated, is probably accounted for by administrative workers in the F.M.S. and S.S. government offices.[66] During the Depression,

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[63] Ibid., p. 239.

[64] Ibid., pp. 243, 239 and 247 respectively.

[65] See the earlier figures on the relation of tin and rubber export duties to total government revenue.

[66] This vague sub-category is considerably larger in the F.M.S. as would be expected.

it will be seen subsequently, the number of government employees fell precipitously as the government initiated a program of retrenchment.

Our understanding of the dualistic structure that had evolved in Malaya up to 1920 can be further enhanced by focusing on employment patterns of Malaya's major communities. The immigration of Chinese and Indians in connection with tin and rubber's growth has been earlier described. Europeans and Malays were the other two important communities. Analysis of the data indicates that each of the communities, or "races" as they are called in much of the literature, had quite clearly assigned positions in the economy. Over the 1920-40 period such comments as the following are common in the Colonial Office Reports:

> "Rice is produced by indigenous Malays or immigrants of cognate races . . . Market gardening and pig and poultry rearing are almost monopolised by Chinese . . . The Chinese also monopolise the building and skilled artisan trades, though North and South Indians also find employment in them . . Tailoring, dress-making and cobbling are mainly in the hands of Chinese who are now ousting the North Indian from his former monopoly of ladies' dress-making . . Chinese are the great majority in mining, logging . . and in felling and clearing jungle for plantations . . . South Indians are in the great majority in Government and Municipal Departments and on European owned Estates . . . In mining South Indians are employed on earth work . . ." [67]

What developed in Malaya was earlier described as "segregative dualism." The censal data, though lacking some of the desired detail, are sufficient to sketch in contour this aspect of Malayan dualism.

The "niche" of the Malay population in Malayan dualism was clearly agriculture and, in particular, rice planting as described earlier in this chapter. In the F.M.S., 204,644 Malays were listed as employed

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[67] 1938 Colonial Office Report, op. cit., pp. 49-50.

in "agricultural operations" in 1921. Of this number, 126,149 were "rice planters" and an additional 56,205 were "agricultural coolies." [68]

Another noteworthy aspect of Malays in agriculture is the fact that almost 11,000 Malays (10,948) were categorized as "estate owners and managers" in 1921. [69] Malay smallholder rubber, which was first developed as a cash crop adjunct to subsistence farming, was emerging as an ever more important element in Malaya's rubber export industry. Such a development, given a suitable production function and other conditions, was suggested in the analytical framework of this study. Subsequent developments in smallholder rubber, like the involutional adaptation of rice planters, will be of major interest in the late twenties and the thirties and these developments will be discussed fully in Chapters VII and XI.

The other Malay employment categories are insignificant by comparison. 5,360 were "persons employed in transport and communications." Analysis of sub-categories indicate that the largest numbers held jobs of low skill such as "drivers of motor vehicles," "bullock carters," "boatmen," "messengers and peons." [70]

The pattern of Malay employment in the Straits Settlements and the U.M.S. is very similar to that described in the F.M.S. with the four largest employment categories being "agricultural operations," "fishermen," "persons employed in transport and communications" and "public administration and defense." The employment figures, respectively, for the Straits Settlements were 57,829; 10,275; 13,568 and 4,171. In Kedah,

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[68] Census, 1921, op. cit., p. 281.

[69] Ibid.

[70] Ibid., pp. 281-284.

the respective figures were 113,040; 2,120; 1,471 and 1,374. Of the 113,040 in agricultural operations in Kedah, 99,936 were "rice planters." Of 20,869 people in agricultural operations in Perlis, 20,705 were "rice planters." [71]

The Indian population in Malaya was in 1921 largely employed in rubber. In the F.M.S., 159,559 Indians were classed as employed in "agricultural operations." Close to 100% of those were classed as "agricultural coolies" i.e., rubber estate labourers. The number so categorized was 153,446. In contrast to some 11,000 Malays categorized as "estate owners and managers," only 277 Indians were so categorized. The Indians represented a separate fully-proletarianized group in Malaya whose separateness was emphasized by their habitation in lines (barracks) on the estates and the special institutions such as the Indian Immigration Committee created to handle problems of Indian labour. The next largest category was "persons employed in transport and communications." 13,287 were employed in these services with the jobs held being largely those requiring a low level of skills. 4,822 Indians were classed as "bullock cart drivers." 4,090 were classed as "other railway servants" in contradistinction to the few hundred employed in higher skill categories such as "railway officials," "station masters," "locomotive engine drivers," "firemen," etc. 12,418 Indians are shown as employed in "public administration and defense." Of these 7,954 are returned as "government coolies" and the other sub-categories are also relatively unskilled such as police (2,066 persons) and "municipal coolies" (1,505).

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[71] Ibid., pp. 277-280 and 285-288. The preceding discussion ignores the large employment category "household duties at home." 64,036 females listed this employment in the F.M.S. in 1921. Throughout this discussion of employment, such categories will be ignored when they are not thought to be germane.

The next largest employment category for the Indian population was "general labourers" with 11,543 Indians so categorized. "Domestic servants" was another unskilled category. 7,845 Indians were domestic servants in 1921. The next most important category, one characterized by a higher level of skills, is that of "proprietors and managers of businesses." 4,604 Indians were so employed in 1921 while an approximately equal number were employed in the more menial sub-categories of commerce and finance such as "salesmen and shop assistants" (1,246), "hawkers" (1,539) and "money lenders and pawnbrokers" (824).

3,971 Indians found employment in "mining and quarrying" in 1921. Nearly two-thirds of these, 2,481 people, were listed as "coolies unspecified, (tin mines)," while one-third, 1,275 people, worked in "stone quarries." Much smaller numbers of Indians found employment in jobs requiring a higher skill level such as "subordinate medical service" (1,152) and "fitters" (984).[72]

The profile of Indian employment in the Straits Settlements is remarkably consonant with that of the F.M.S. "Agricultural operations" accounted for 31,572 Indian employees. Next was "transport and commerce" with 7,829 employees followed by "general labourers" of whom there were 7,250. "Public administration and defense" engaged 5,498 Indians. The 3,412 "proprietors and managers of business" were more than offset by the 4,624 in the more menial categories of "salesmen and ship assistants" and "hawkers." 3,276 Indians worked as "domestic servants." A breakdown into further sub-categories would yield the same general result as found in regard to the F.M.S. with only one exception worthy of mention.

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[72] Ibid., pp. 306-309.

Those engaged in "mining and quarrying" in the S.S., 337 men and women, all worked in "stone quarries." [73]

Analysis of the U. M. S. censal data--the main categories and the sub-categories--supports the same general conclusions regarding Indian labour. 19,092 Indians were engaged in "agricultural operations." 1,128 Indians were "persons employed in transport and communications" while 1,068 worked in "public administration and defense." 1,076 were "general labourers" and 790 were "domestic servants." 722 Indians were "proprietors and managers of businesses" while a total of 459 were in the categories of "salesmen and shop assistants," "hawkers" and "money-lenders and pawnbrokers." [74]

In many of the U.M.S.--for example Trengganu, Perlis and Kelantan--the Indian population was very small. In Trengganu, for example, the Census reports only 16 Indians in "agricultural operations," 3 in "transport and communications," 19 in "public administration and defense," 16 as "general labourers" and 10 as "domestic servants." 60 Indians were "proprietors and managers of business" in Trengganu while a total of 16 were in the categories of "salesmen and shop assistants,"

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[73] Ibid., pp. 302-305.

[74] Ibid., pp. 310-312.

"hawkers" and "moneylenders and pawnbrokers." Representation in the various employment categories is strikingly similar in Perlis and Kelantan with all of the numbers being slightly larger for Kelantan than for Trengganu and Perlis.

Agriculture was the main employment of Chinese in the F.M.S. in 1921 with 123,762 people employed in that sector. Employment in agriculture, however, was considerably more varied for the Chinese than it was for the other communities as disaggregation of the figures on employment in "agricultural operations" shows. 79,237 people were listed as "agricultural coolies." The bulk of these were most likely rubber estate labourers.[75] Very significantly, 6,231 Chinese were "estate owners and managers." As in the case of the Malays, this represents a small entrepreneurial group of smallholders who profitably combined several types of agriculture with rubber as a cash crop.

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[75]It is not clear in the 1921 Census Report. However, throughout the 1920's there was one Chinese estate worker for about each three or four Indian workers. See Parmer, op. cit., table on page 273.

A total of 20,215 Chinese in the F.M.S. listed their occupation as fruit and vegetable growers. As earlier indicated the Chinese nearly monopolized vegetable gardening as they did pig rearing and poultry rearing. The latter two employed, respectively, 1,399 and 329 people. It will be seen shortly that part of the adaptation to the Depression was rising employment in market gardening and stock rearing. Another large sub-category under "agricultural operations" is "foresters and woodmen." The 9,408 Chinese engaged in extraction and conversion of timber for the use of the dredges appear to be the chief beneficiaries of this induced demand brought about by the growth of capital-intensive tin mining.

Turning to "mining and quarrying," the same observation may be made. 1,661 "coolies (unspecified)" found employment in coal mines. As earlier noted, coal was an important source of power for the tin mining industry and was also used by the railroads. Thus this induced demand also benefited the Chinese rather than the Indians or Malays. The great bulk of the 70,159 people engaged in quarrying and mining were, of course, in tin mining. The work was largely unskilled as evidenced by the fact that 66,300 persons out of 70,159 were classed as "coolies, unspecified (tin)."

Further favorable repercussions or induced developments that redounded to the benefit of the Chinese are suggested by the data on "workers in metal." The largest sub-categories are "skilled forge workers" (1,465 people), "fitters" (1,804) and "goldsmiths" (1,644).

The census data bear out the earlier observation about the Chinese monopolization of the building and skilled artisans trades. 13,576 people are classed as "workers in wood and furniture." Of that

number, 10,017 were "carpenters" and 2,691 were "sawyers." A further 1,732 Chinese were "masons." In contrast to these rather more skilled occupations, 25,194 Chinese in the F.M.S. were "general labourers."

A high skill-level is also evidenced in the 5,207 Chinese employed as "tailors and tailors-machinists," "boot and shoemakers" and "seamstresses." In addition 21,509 Chinese are categorized as "proprietors and managers of businesses." 17,963 Chinese found employment in the more menial jobs of "salesmen and shop assistants" and "hawkers." 14,393 Chinese were "domestic servants" in the F.M.S. 3,196 were employed in "public administration and defense," largely in unskilled jobs. The 15,396 jobs in "transport and communications" were almost all unskilled-- over 70% being accounted for as "bullock cart drivers," "ricksha and hand-cart pullers" and "other railway servants." 5,053 Chinese in the F.M.S. were "fishermen."[76]

There was little significant deviation from this pattern of Chinese employment in the rest of Malaya. In general, the Chinese held more varied jobs and more highly skilled jobs. In many instances this led to communal tension and fear of Chinese economic domination.[77]

The Europeans, in Malaya's segregative dualism, constituted the managerial class. The 1921 Census Report lists, under "agricultural operations," 112 "estate owners and managers" and 1,381 "planters unspecified." Under "mining and quarrying operations" are found 8 managers of coal mines and 202 "owners agents and managers" of "metalliferous

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[76] Census, 1921, op. cit., pp. 294-297.

[77] Further comment on this and other aspects of communalism is made elsewhere in this study. See, for example, Chapter XI.

mines" (tin). An additional 173 Europeans are categorized as "proprietors and managers of businesses." The only other occupational categories of any size are "mechanical engineers" of which there were 271 and "public administration and defense." The two sub-categories of importance under the latter heading were "civil service officials and clerks" with 266 employees and "police commissioned officers and inspectors" with 114.[78]

The employment picture of Europeans in the Straits Settlements was very similar to that in the F.M.S. The S.S. appears, in fact, to be even more of an administrative center from which the Malayan economy was directed. 398 Europeans were listed as "estate owners and Managers," "estate assistants" and "planters unspecified." An additional 518 were "proprietors and managers of businesses" while 491 were shown as "commercial assistants." 1,232 Europeans were engaged in "public administration and defense" and 892 of those were military personnel. The only other important categories are "civil engineers and surveyors" (242) and "mechanical engineers" (113).[79]

In Johore, 273 Europeans were categorized as "estate owners and managers, estate assistants."[80] No other categories were important.

The position of the Europeans in the Malayan economy would be altered scarcely at all in the 1920-40 period.

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[78] Ibid., pp. 269-270.

[79] Ibid., pp. 266-278.

[80] Ibid., p. 271. Respectively, the figures for Europeans in Kedah, Kelantan and Trengganu were 152, 53, and 15.

In summarizing the evolution of the Malayan economy up to the early twenties as revealed in 1921 Census data, we observe the rapid growth of a "capitalistic" sector comprised of tin and rubber and built up with British and Chinese capital and labour from India and China. With the autonomy of the sectors well maintained, urbanization and commercialization of only a segment of society occurred and the traditional sector was basically unaffected. Malaya had been stereotyped into a dualistic pattern.

As we turn to changes in the decade before the Depression, it will become apparent that the dualistic stereotype was not broken down. Increases in employment were largely confined to those sectors that were initially affected by the growth of the export industries. Not surprisingly most of these changes were already in evidence in 1921. The growth of the money economy, though limited, was encouraging.[81] One is struck, however, by the fact that in a decade of prosperity no significant new industries arise with the exception of oil palm.[82] One is also struck by the extent to which the segregative character of Malaya's dualism is maintained. The Indians continued to be largely estate labourers, but also found employment in transport and government. The Chinese continued to be important in tin mining but were more diversified

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[81] In an appendix to this chapter, four employment categories-- "transport and communications", "manufacture of metals, etc", "woodworking", "commerce and finance"-- are chosen as illustrative of growth in the money economy. In general, the categories saw steady increases during this period though the percentage increases were often less than population increases.

[82] The Malayan Agricultural Statistics (Kuala Lumpur: Registrar General of Statistics, 1939) shows that the acreage under oil palm (as declared by estates) rose from 512 in 1920 to 14,430 acres in 1930. See Table 32.

as indicated in the earlier enumeration of census data. During the 1920's, their strong economic position was even further strengthened and this continued to contribute to communal tensions.[83]

The 1931 Census Report is succinct in describing the Malayan economy in the early Depression: It was a "community the majority of which is concerned in the production of foodstuffs and raw materials, and a minority in subserving the needs of the majority in the way of administration, marketing, transport, supply and personal service."[84]

The above contentions may be substantiated and the economic profile more fully drawn by looking at the 1931 census data.

In 1931, the population of Malaya was 4,385,246 representing an increase of 30.6% over the 1921 population (3,358,054). (The population of the F.M.S. was 1,713,096 and of the S.S. was 1,114,015) Population growth in the Unfederated Malay States ranged from 16.9% in Trengganu to 79.0% in Johore. For the Straits Settlement, the growth rate was 26.1% and for the F.M.S., the rate was 29.3%.[85]

Rubber, tin and rice planting continued to be of overriding importance in the Malayan economy with output considerably higher than it had been ten years earlier. Rubber production rose to 457,000 tons

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[83] Ultimately the fear of Chinese economic domination would even extend to fear that the Chinese might make rice growing a commercial concern and thus deprive the Malays of their traditional means of livelihood. This is important to an understanding of later developments in rice and will be further commented on later--particularly in Chapter XI.

[84] Census, 1931, op. cit., p. 99.

[85] Ibid., p. 32.

in 1929. In 1930, it stood at 452,000 tons and in 1931 at 434,900 tons. [86] The number of people employed in "rubber cultivation" in the F.M.S. in 1931 was 289,135. In the Straits Settlements, the figure was 56,948 and in Kedah, the figure was 41,692. [87]

Tin production had risen by 1929 to 67,043 tons with 1930 production at 62,065 and 1931 production at 50,654 tons. [88]

Employment in "mining and quarrying" stood at 82,861 in the F.M.S. in 1931 with 77,348 of these labourers in tin mining. The number of miners in the rest of Malaya was negligible. [89]

Rice production in Malaya in the 1929-30 season stood at 160,335 tons. In 1930-31, it was 264,202 tons. In 1931-32 it was 295,948 tons. The increases may be attributed to the governments' new emphasis on rice after the 1929 Reorganization, rising acreage and other factors.[90] In 1931, the number of people engaged in "rice cultivation" in the F.M.S. was 85,326. The figures, respectively, for the S.S. and Kedah were 11,453 and 107,130. [91]

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[86] Lim, op. cit., p. 328. For comparison, the 1921 production was 151,000 tons.

[87] Census, 1931, op. cit., pp. 248, 246 and 250. Some of those categorized in "other or multifarious agricultural industry" may also have been rubber cultivators.

[88] Fermor, op. cit., p. 44. The figures for 1929 and 1930 are actually export figures which are just about identical with production. For comparison, 1921 tin production (exports actually) was 34,491 tons.

[89] Census, 1931, loc. cit.

[90] Malayan Agricultural Statistics, op. cit., 1940, Table 29. The figures given are the totals of wet and dry rice. Well over 90% of rice production was of wet rice. For comparison, the 1921-22 production was 211,302 tons. See Cheng Siok-Hwa, "The Rice Industry of Malaya--A Historical Survey," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. XLII, part 2, 1969, p. 142 for figures on acreage and a discussion of developments in rice from the nineteenth Century onwards.

[91] Census, 1931, loc. cit. As far-reaching changes occurred in agriculture in the 1920's and 30's, extended comment will be made in subsequent chapters.

Favorable employment repercussions in the industries providing service and material inputs to the export industries continued to be felt in the late twenties and early thirties. Transport was especially important and the continuing growth of the transport network (described in Chapter V) is reflected in a considerable rise in the number of employees in "transport and communications"--38,180 in 1931 compared to 33,633 in 1921 in the F.M.S. The growth of the road network resulted in a large amount of additional employment. The 1931 Census Report shows 21,460 people employed in "road transport" in the F.M.S. which compares to the 13,530 employed in "motor garages and livery stables" and "cartage" in 1921. In addition "water transport" employment approximately doubled in the decade--rising to 5,304 employees.[92] By contrast the number of railway employees hardly changed. The figures were 8,740 in 1921 and 8,698 in 1931. The trend was the same in the Straits Settlements but even more pronounced. Employment in railway transport declined from 1,953 to 1,671 while in "road transport" and "water transport" there were large increases. 31,942 were employed in road transport in 1931 compared to 15,445 in "motor garages and livery stables" and "cartage" in 1921. 28,922 were employed in water transport in 1931 compared to 22,597 in "shipping service," "tug, barge, lighter, boat service" and "loading and discharging vessels" in 1921.[93]

12,140 people were engaged in "forestry and wood-cutting" in the F.M.S. in 1931 indicating a continued demand for firewood for the

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[92] Ibid., p. 249.

[93] Ibid., p. 247. It appears that the latter three items were subsumed under "water transport" in 1931.

dredges. 1,761 people worked in forestry and wood-cutting in the Straits Settlements, 590 in Kedah, 2,347 in Johore, 180 in Kelantan, 422 in Trengganu.[94]

The induced demand for coal appeared to be at about the same level as ten years earlier. The 1931 Census Report shows 4,699 people employed in "other mining and quarrying industries."[95] Allocating employment on the basis of ratios shown in the 1921 Census Report (where employment was shown separately for "coal mines," "stone quarries" and "gold mines") indicates employment in coal mining of 1,880 people-- a slightly higher figure than that of 1921. On this allocation, 2,584 people were engaged in stone quarrying and 235 in gold mining.[96]

The decade of the 1920's also saw increases in the numbers of skilled workers in Malaya. Again, the increases derived from the growth of the tin export industry, the growth of industries using local products and industries in which economies of scale were unimportant. The number of employees in the F.M.S. in the "manufacture of metals, machines, implements, conveyances, jewelry, watches" increased from 9,654 in 1921 to 17,826 in 1931.[97] Disaggregation of the magnitude reveals some interesting facts. In the higher skill sub-categories, such as "smiths and forge workers," "other mechanics and fitters," "goldsmiths and silversmiths," the Chinese tended to be much more numerous than the Indians and Malays. The number of employees in almost all these categories increased in the F.M.S. and S.S.[98] This also was the

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[94] Ibid., pp. 248, 246 and 250.

[95] Ibid., p. 248.

[96] Census, 1921, op. cit., p. 240.

[97] Census, 1931, op. cit., p. 248.

[98] Ibid., pp. 294-295.

case in other skilled employments where the Chinese predominated such as "tailors, dressmakers and seamstresses." [99] In contrast to this, the number of employees in these few skilled categories where Indians were well represented-- for example "ancillary medical, dental and veterinary services" and "other mechanics and fitters,"-- declined between 1921 and 1931.[100] This represents an intensification of Malaya's segregative dualism with the Chinese, who already enjoyed a strong economic position vis a vis the other communities, further strengthening their position. Strong corroboration of this point is provided in the figures on "general labourers" which is one of the largest unskilled categories. While the number of Chinese so categorized in the F.M.S. fell from 25,194 in 1921 to 16,146 in 1931, the number of Indians so categorized rose from 11,543 to 25,317.[101] Large increases in the number of Indians categorized as "general labourers" were also recorded in the S.S. and the U.M.S. These figures may well represent the adjustment of taking whatever job was available by the wage-earning estate employees, largely Indians, who were no longer needed by the estates but had not been repatriated.[102]

In 1931, the number of people employed in "woodworking" in the F.M.S. was 16,193. This represents a modest increase over 1921. Of that number, 12,058 were in "carpentry, joinery and furniture making" and 3,003 were in "timber sawing"-- both employments with higher skill

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[99] Census, 1931, op. cit., p. 248.

[100] Ibid., pp. 300 and 298.

[101] Ibid., pp. 297 and 301.

[102] Indian estate employment fell by 76,438 between 1929 and 1931. Calculated from J. Norman Parmer, Colonial Labor Policy and Administration (Locust Valley, New York: J.J. Augustine Inc., 1960), p. 273.

content than say "basketry" which employed 1,030 people.[103] The growth of the decade is also reflected in the large increase in woodworking in the Straits Settlements in 1931 with 15,040 and 2,128, respectively, in the "skilled" sub-categories of "carpentry, joinery and furniture making" and "timber sawing."[104] There were also increases in Johore where the figures, respectively, for woodworking and the two sub-categories were 3,540; 2,816 and 406 and, in general, in the other U.M.S.[105]

An increase in employment in "housebuilding and painting" was induced by the general prosperity and growth of the 1920's. 5,050 people were employed in these activities in the F.M.S. and 7,504 in the S.S. in 1931.[106] The comparable items in 1921 were "painting and decorating" and "building." Together, these items accounted for 2,129 and 3,479 employees in the F.M.S. and S.S. respectively.[107] The number of people employed in "housebuilding and painting" was 999 in Johore, 652 in Kedah, 581 in Kelantan, 243 in Trengganu, 22 in Perlis and 7 in Brunei.

Unskilled employment of a service nature continued to be important in Malaya. Illustrative of this are the figures on "domestic service." Employment in this category rose in both the F.M.S. and S.S. during the decade. In the F.M.S. it rose to 34,807 and in the S.S. to 37,822. This compares, respectively, to 25,447 and 29,080 in 1921.[108]

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[103] Census, 1931, op. cit., p. 248.

[104] Ibid., p. 246.

[105] Ibid., p. 250.

[106] Ibid., pp. 249 and 247.

[107] Census, 1921, op. cit., pp. 241 and 237.

[108] Census, 1931, op. cit., pp. 249 and 247.

It appears that employment in the unskilled sub-categories of "commerce and finance"-- such as "salesmen and shop assistants," "hawkers," "money lenders and pawnbrokers"-- increased during the decade. Perusal of the figures on Indians and Chinese employed in these activities indicates increases in both cases.[109] In the employment figures for "all races," the data are not comparable. Activities under the broad cachet of "commerce and finance" are grouped into fewer sub-categories in 1931 than was the case in 1921.[110]

In general, though, the number of people employed in "commerce and finance" activities of some type rose throughout the twenties and thirties. In 1921 and 1931, respectively, the number of people engaged in commerce and finance in the F.M.S. was 60,544 and 70,030.[111] The comparable figures for the S.S. in 1921 and 1931 were 78,895 and 102,249.[112] In the U.M.S. changes of approximately the same magnitude were recorded.[113]

Thus the 1921 and 1931 Census data make possible a rather detailed sketch of Malayan dualism with its added complication of communalism (or what has earlier been called segragative dualism). The

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[109] Ibid., pp. 300 and 296.

[110] To cite one example, in 1931 there is just one very large entry called "wholesale and retail dealing" whereas in 1921 there were separate entries for whole sale and retail dealing in many different items.

[111] Census, 1921, op. cit., p. 242.

[112] Ibid., pp. 238 and Census, 1931, op. cit., p. 247.

[113] Census, 1931, op. cit., p. 251. See for additional detail.

next census taken, in 1947, would show that dualism indeed persisted through the 1930's. Figures and data from that census will be discussed along with the important matters of smallholder rubber, agricultural involution and government retrenchment to which we now turn.

APPENDIX

A GLOSSARY OF MALAY TERMS USED IN THE TEXT

gantang	- gallon.
1 gantang padi	- 5 lbs. approx.
1 gantang rice (milled)	- 8 lbs. approx.
kampong	- cluster of buildings making up a large homestead or small hamlet, and including the surrounding mixed gardens.
mukim	- territorial subdivision for purposes of land revenue.
padi-- rice	- (i) as a plant; (ii) in the ear; (iii) as unhusked grain.
pawang	- Malay magician, survival of the priest of the old pagan religion.
pawang padi	- pawang specialised in the care of the padi fields.
relong	- one and one-third acre.
sawah	- wet rice plot.
tajek or tajak	- grass cutter.
tuai	- a small reaping knife.

Source: Tan, (Ding Eing Tan Soo Hai) The Rice Industry in Malaya 1920-1940, p. 2.

Employment Changes Suggestive of a Growing Money Economy[114]

	F.M.S.	S.S.	Other States	Total
1921				
Transport and Communications:	33,633	69,261	14,857	117,754
Manufacture of Metals, etc:	9,654	15,223	4,631	29,508
Woodworking:	14,911	15,893	5,908	36,712
Commerce and Finance:	60,544	78,895	35,602	175,041
1931				
Transport and Communications:	39,180	67,584	17,612	124,376
Manufacture of Metals, etc:	17,878	17,826	6,073	41,777
Woodworking:	16,193	19,352	10,040	45,585
Commerce and Finance:	70,030	102,249	50,745	223,024

1947 Federation of Malaya and Singapore	
Transport and Communications:	112,212
Manufacture of Metals, etc:	52,362
Woodworking:	50,896
Commerce and Finance:	256,169

[114] Calculated from Census, 1921, 1931 and 1947, op. cit.

Chapter VII

Smallholder Rubber and the Institutional Infrastructure

One of the most significant developments in Malayan agriculture in the 1920-40 period relates to smallholder rubber. It will be recalled that in the 1921 Census, 10,948 Malays and 6,231 Chinese were reported as rubber "estate owners and managers" in the F.M.S.[1] By 1931, the number of Malay estate owners and managers had fallen to 1,803 or less than one-fifth the number of ten years earlier. The number of Chinese estate owners and managers had fallen to 1,514.[2] Thus, what appeared to be one of the most promising developments in Malayan agriculture in the years following the 1905 introduction of rubber into Malaya was to be arrested and partially reversed in the twenties and thirties. By the late twenties, the smallholder share of rubber production would stand just below half. By the late thirties, the smallholder share would fall below a third of total rubber production.[3] Given that rubber was an eminently suitable peasant crop, this must be regarded as a surprising development and one that requires further explanation.

To explain developments in smallholder rubber it is necessary to begin with recognition of a dual structure in Malayan agriculture itself. The Malayan rubber industry has been from its inception divided

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[1] The Census of British Malaya, 1921 (London: Waterlow and Sons, Ltd.), pp. 281 and 294.

[2] The Census of British Malaya, 1931 (London: Waterlow and Sons, Ltd.), pp. 288 and 294.

[3] Figures are not available for the early 1920's. Lim Chong-Yah, Economic Development of Modern Malaya (London: Oxford University Press, 1967) reports the estate share of total production at 54% in 1929, 52% in 1930 and 68% in 1938. See table, p. 328.

structurally into two sectors-- estates and smallholders. A further agricultural duality exists in the coexistence of rubber production for export and subsistence agriculture. It is argued in this section that the institutional framework is indeed relevant to the allocation of resources and thus the posit of duality within agriculture becomes important.[4] It is argued in this chapter that an understanding of the institutional framework of agriculture-- in particular an understanding of the role of what Jochimsen calls "institutional infrastructure"-- is requisite to an understanding of the perpetuation of dualities within agriculture itself and, more broadly to an understanding of Malayan economic development in the 1920-40 period.

In beginning this discussion of dualism within Malayan agriculture, several postulates should be made explicit. First, rubber smallholding offered Malaya a promising formula for rural development. This depended importantly on the production function and the systemic

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[4]In much of the literature on economic development, the institutional framework of agriculture is not clearly specified or it is assumed that the institutional framework is uniform. See W.A. Lewis, "Economic Development With Unlimited Supplies of Labour," Manchester School of Economic and Social Studies, May, 1954 who alludes to an agricultural sector in which the family holding is small. Fei and Ranis, Development of the Labour Surplus Economy: Theory and Practice (Homewood, Illinois, 1964) speak first of a peasant economy and in later chapters of the behaviour of "enlightened," presumably big landlords. Robert Mabro, "Employment and Wages in Dual Agriculture", Oxford Economic Papers, New Series, Vol. 23, Number 3, London: Oxford University Press, November 1971, pp. 401-417 notes that in such approaches to the study of economic development, agricultural "labour is paid a subsistence wage whose level is determined by tradition or related in some way to the average product. Disguised unemployment-- a situation where the marginal product of labour is zero-- prevails in the whole sector... The allocation of resources within agriculture is inefficient because of unfavorable endowments of land and capital. For many years this simplified picture has dominated the literature."

characteristics that made possible a mutualistic relationship between smallholder rubber and Kampong cultivation.[5]

Second, it may be inferred from the empirical studies on peasants' responsiveness to price incentives that agriculturalists generally behave as "rational" agents.[6] This, indeed was the case with Malay peasants and evidence will be adduced in support of this contention. Additionally, as Rudner notes in speaking of the Malay peasantry, "the propensity to innovate was demonstrably present in a broad based social group."[7] The extent to which such innovation occurs, it will be seen, depended importantly on the institutional infrastructure and more particularly in Malaya's case on governmental policies.

Given this rationality and the presence of the propensity to innovate it shall be assumed in this study that peasants maximize an objective--given certain constraints and allowing for risks.[8] An important constraint consists of the institutional arrangements under which land is rented and/or normally worked. Considerable imperfections were present in the land market in Malaya in the 1920-40 period. Also cultural,

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[5]See inter alia Chapter I for expansion of this point as well as Clifford Geertz, Agricultural Involution (Berkeley: University of California Press, 1968) and P.T. Bauer, "The Economics of Planting Density in Rubber Growing," Reprinted from Economica, New Series, Vol. XIII, No. 50, May, 1946. Further comment will be made on this matter.

[6]See Mabro, op. cit., p. 405 on this point and his further references.

[7]Martin Rudner, "The State and Peasant Innovation in Rural Development: The Case of Malaysian Rubber," Asian and African Studies, Vol. 6 (Jerusalem, 1970), p. 75.

[8]It is assumed that the estate sector operates to maximize profits.

sociological and governmental factors operative in Malaya must be taken account of in discussing the arrangements under which the land was worked in Malaya in this period.[9] Working arrangements may be determined at least in part by the man/land ratio-- a ratio which was falling in Malaya in the 1920-40 period.[10] An important governmental factor that constituted a constraint on the maximizing activity of Malay peasants was the Malay Reservations Enactment through which the colonial government attempted to keep Malays in a "traditional" role in Malayan agriculture.[11]

Subject to constraints, Malay peasants could maximize utility by trading income (say rice or rubber) for leisure.[12] Because of the dual structure of agriculture, agriculturalists could work on the family holding or-- if the labor market operated without restrictions-- enter wage employment on estates. In maximizing, a choice also had to be made between Kampong and rice cultivation on the one hand and rubber cultivation on the other.

With smallholders producing at lower cost and enjoying higher yields than estates, one might reasonably have expected in 1920-40

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[9]The land market, its imperfections and the relevant cultural, sociological and governmental factors are discussed later. Especially important were the problems of co-ownership, fragmentation and rural indebtedness.

[10]This point is expanded later.

[11]This is discussed in detail elsewhere in this study--particularly in Chapter XI.

[12]K.E. Knorr, World Rubber and Its Regulation, Food Research Institute, (Stanford, California: Stanford University Press, 1945) p. 33 notes in regard to Malayan Smallholder rubber that "whether or not outside labour is employed depends not only on the size of the holding but also on the price of rubber. During periods of high prices, owners with only 5 or 10 acres or even less may find it pleasanter to hire tappers than to do the work themselves. They decide to take part of the profit in leisure."

expansion of the number of smallholders and "balanced" growth rather than a freezing of the dualistic pattern.[13] Jochimsen suggests an explanation for the latter development in noting that "many of the phenomena of dualism ~~rise~~ arise from elements which must be attributed to the national peculiarities of the institutional sector of infrastructure "including" political economic and other possibilities of influence."[14]

Specifically in Malaya's case, we must focus on the Stevenson Scheme of the 1920's and the International Rubber Restriction Scheme of the 1930's to understand the perpetuation of dualism in 1920-40. Had it not been for these statutory restrictions, the economic history of Malaya would have indeed been different with the number of smallholders greater and rubber prices lower.[15]

Extreme fluctuation in rubber's price in the years leading up to the 1920's would seem to be an important factor in Britain's

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[13]See on the question of yield, P.T. Bauer, Economics of Planting Density in Rubber Growing, op. cit. Bauer writes that "in the choice of planting density the rational course is not the same for estates and for smallholdings...The smallholders attempt to maximize the gross yield per surface unit. On their densely planted holdings the trees are of smaller girth and the yield per tree lower than on the estates, but the yield per surface unit is higher. In Malaya and Netherlands East Indies (N.E.I) normal unrestricted yields on smallholdings are about 475-500 lb. per mature acre, against some 400 lb. on seedling estates.", p. 131.

The question of cost is examined in detail in Chapter III. In that chapter it is conceded that purportedly exact cost and yield figures may not be completely reliable. Yet there exists sufficient evidence to make a very strong case for the lower costs of smallholders. Corroboration of the general conclusions of that chapter is provided in P.T. Bauer, The Rubber Industry (London: The London School of Economics, University of London, 1948) and by other writers as well as by the fact that a large supply of rubber was forthcoming from N.E.I. smallholders when rubber fell as low as tuppence a pound.

[14]Reimut Jochimsen, "Socio-Economic Dualism and Development Strategy", Arian and African Studies, Vol. 6 (Jerusalem, 1970), pp. 106-107. Jochimsen's "presupposition that the political institutions of a country are dominated by the same groups which control the economy" (p. 107) is also germane to Malaya.

[15]These conclusions are also suggested by P.T. Bauer, Report on a Visit to the Rubber Smallholdings of Malaya (London: H.M.S.O., 1948) p. 38.

decision to enter into the Stevenson Scheme which was operative from 1922 to 1928.[16] The official British position on restriction before entering into the Stevenson Scheme was expressed in a May, 1921 statement by a spokesman for the Lloyd George Government: "no legislation for compulsory restriction of output should be introduced by the government as the policy...would necessitate undue Government interference in economic policies...conditions must be allowed to right themselves".[17] This position was reversed within six months. And the policy reversal, suggests Knorr, is not only explained by price fluctuation but also by "the strong pressure of influential persons and groups and of the local colonial administrations" as well as fear that American interests would "buy up a bankrupt British rubber-plantation industry."[18] Also, there was anxiety over Britain's foreign exchange position-- an anxiety that was reinforced by the United States' insistence on repayment of the war debts.[19] In October, 1921 the Secretary of State for the Colonies, Winston Churchill, appointed the Stevenson Committee. The committee was heavily weighted in favour of the estates and maintained close liaison with the government. Of the committee's eight members, five were directors of rubber companies and members of the Rubber Growers Association, two were civil servants and Sir James Stevenson, the Chairman, was

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[16] In 1911, the average London price was 5s 6d. In 1920 the average London price was 1s 9d. See Sir Andrew MacFadyean, ed., The History of Rubber Regulation, 1934-1943 (London: George Allen and Unwin, Ltd., 1944) p. 21 for additional figures on the rubber price.

[17] Knorr, op. cit., p. 93.

[18] Ibid., p. 94.

[19] Throughout the 1920's and 1930's articles appear in newspapers such as The Straits Times and Malay Mail expressing concern over the difficulty of repaying war debts to the U.S.

personal commercial adviser to Winston Churchill and maintained financial interests in rubber growing.[20] The Stevenson Scheme was very successful in its goal of protecting the estate sector as attested by Knorr. "Nearly all estates, high- and low-cost survived. Of all British rubber companies only a few had to be reorganized by additional call on the shareholders and only two were foreclosed by debenture holders."[21] The average price throughout the six years of the Stevenson Scheme was 1s 7½d per pound, "A notable advance on the figure to which it had fallen in 1922."[22] The numerous provisions which operated to the advantage of estates over smallholders-- the underassessment of the latter, discouragement of new planting, refusal to alienate land for rubber planting-- will be subsequently discussed.

Early in its life, the Stevenson Committee entertained proposals for stimulating new and extended uses of rubber as the best means of ensuring a high price. Such measures enjoyed very limited success. The Committee also entertained the laissez-faire method but rejected it as likely to invoke prolonged hardships on "the many tens of thousands of shareholders in this country alone and the many thousands of European and Asiatic owners and shareholders resident in the countries of production."[23] Finally "....with reluctance and with a lively apprehension of

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[20]Knorr, op. cit., The Rubber Growers Association with a membership of some 500 companies and including practically all sterling companies typifies the sort of institution mentioned by Jochimsen through which economic interests set up and realize their plans. It, and the Rubber Shareholders Association, were formed in 1921.

[21]Ibid., p. 104 citing Rae, "Statistics of the Rubber Industry," Journal of the Royal Statistical Society, 1938, Vol. CI, Pt. II, p. 325.

[22]The Straits Times, October 17, 1930, p. 11.

[23]Knorr, op. cit., p. 94.

the dangers," the Stevenson Committee decided on "compulsory restriction as an alternative to what seemed to be worse evils".[24] As the N.E.I. accounted for 25.5% of plantation rubber production, it was felt that the plan would not work without the participation of the Netherlands government.[25] The Dutch, however, refused to support the Scheme.[26] On further deliberation and after the Rubber Growers Association had received assurances of voluntary support by some British and Dutch estates in the N.E.I., the decision was made to go ahead with compulsory restriction. The Scheme was approved by the Cabinet, quickly passed by the local legislative councils of Malaya and Ceylon. It went into effect on November 1, 1922. The details of the plan are set forth below.[27]

Under the Stevenson Scheme, exports were to be limited to a prescribed percentage of the standard production of each producer. Generally, the quantity of rubber produced by an estate in the year ending October, 1920 was regarded as its standard production. No production records of this base year were available for smallholders, however, and "standard production was assessed according to an arbitrary scale that fixed

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[24] Ibid., see p. 95 for further details on the measures mentioned.

[25] British dependencies accounted for about 72% of plantation rubber at the time. Ibid.

[26] Ibid., see p. 95 for an explanation of the reasons behind the Netherlands' decision.

[27] The Stevenson Scheme, like the later International Rubber Regulation Scheme, is very extensively covered in various excellent works e.g., Whittlesey. Thus, the description of these schemes is not meant to be exhaustive but to cover only those aspects of the schemes germane to the thesis advanced in this study. The present description draws heavily on Knorr, op. cit., p. 96-101.

output capacity per acre on the basis of the age of the trees."[28] A prohibitive scale of export duties was imposed on exports exceeding the prescribed percentage of standard production and quarterly coupons were issued for the exportable quota of each producer. Changes in the exportable percentage were to be governed by changes in the average quarterly price of rubber with the pivotal price fixed at 1s 3d a pound. It was decided that the initial exportable percentage should remain at 60 as long as the average quarterly price remained between 1s and 1s 3d a pound. The mechanism of control was envisaged to be completely automatic. Should the price during any subsequent quarter average less than 1s a pound, the exportable percentage was to be cut by 5 in the ensuing quarter with this automatic adjustment repeated until the pivotal price range was reached. Similar provisions were made for increases in the exportable percentage if the quarterly price averaged more than 1s 3d. Thus changes in the rubber being supplied were to depend on a mathematical formula rather than human decision.[29]

The "supreme authority" over the operation of the Stevenson Scheme was the Secretary of State for the Colonies.[30] An advisory committee was appointed consisting of two representatives of the Rubber Growers' Association and one each from the Planters' Association of Malaya, the Planters' Association of Ceylon, the British Rubber and Tire Manufacturers' Association and the India Rubber Manufacturers Association

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[28]Knorr, op. cit., p. 96.

[29]Charles R. Whittlesey, Governmental Control of Crude Rubber, The Stevenson Plan (Princeton, New Jersey: Princeton University Press, 1931) Chapter IV provides more detail.

[30]Ibid., p. 48. The following description of the authorities responsible for administering the Stevenson Scheme draws heavily from Whittlesey.

"as well as certain other members."[31] This body advised the Secretary of State for the Colonies but did not have executive powers. The chief Secretary to the Government of the F.M.S. was responsible for rules and regulations governing the administration of the act, announced changes in the quarterly export allowance, appointed enforcement officers and in general was the official head of restriction. The Controller of Rubber, appointed by the Governor as was the Deputy Controller, was directly in charge of execution of the law. The same person acted as Controller of Rubber in the F.M.S. and the S.S. to ensure a uniform policy. In this executive capacity, the controller enforced the provisions of the law, kept records, supervised exports and was responsible for the issuance of quarterly licenses for all holdings larger than 200 acres. A Central Committee of not less than five members was appointed by the Chief Secretary. At least two were required to be members of the planting industry. The Central Committee advised about the carrying out of regulations and heard appeals from the decisions of the Local Committees. The latter were appointed by the Residents of the various states and were directly concerned with the operation of the law. The Local Committees fixed standard production for the estates of over 200 acres and issued certificates of standard production for use by the estates when obtaining their quarterly license. The Local Committees also heard appeals from the decisions of the District Officers. The District Officers were appointed by the Chief Secretary and were empowered to fix the standard production for estates of less than 200 acres (100 acres in the Straits Settlements) and to issue certificates of standard production, quarterly licenses and

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[31] Ibid.

coupons . The preferential treatment of large estates is obvious in the fact that estates between 25 and 200 acres could appeal decisions fixing standard production to the Local Committee and estates over 200 acres could appeal decisions made by the Local Committee to the Central Committee. But for holdings under 25 acres, no appeal was allowed from the decisions fixing standard production.[32]

In practical effect, the Stevenson Scheme operated to assure the underassessment of smallholders. Under the Stevenson Scheme "the average assessment per mature acre of Malayan smallholdings was about one half of that of estates."[33] Part of the explanation for smallholder underassessment lies in the fact that no production records of the base year (the year ending October, 1920) were available for smallholders as they were for estates. Thus smallholders' standard production was assessed in a very crude and arbitrary way based on the age of the trees. The latter was often estimated on the basis of roadside observation--a practice which often provided the authorities with erroneous or unrepresentative information. Holdings near the roads were often planted on land with a previous history of cultivation, were generally older than holdings further in the interior, usually suffered most from the bad tapping of rubber's early days and were generally the "last to go out

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[32] Ibid , p. 50. Estates appealing decisions were required to pay a minimal fee which was refundable.

[33] P.T. Bauer, "The Working of Rubber Regulation," reprinted from Economic Journal (London: Macmillan & Co., Ltd. September, 1946), pp. 391-414. Bauer notes that "after the withdrawal of that scheme, yields per mature acre on smallholdings were regularly much in excess of those on estates...revealing the very substantial underassessment of the smallholders under the Stevenson Scheme". Figures and further discussion of this point are forthcoming.

of tapping during a slump or at low rates of release under restriction because of the lower transport costs to the nearest dealer or larger village."[34] The larger part of smallholder acreage consisted of stretches of rubber some distance behind the Malay dwellings and often separated from the village dwellings by a belt of padi fields. "The rubber in the extensive stretches some distance from the villages is generally much better than the patches in the villages. This applies...in most of the important rubber-producing districts of Malaya and the difference is often very striking".[35] Moreover, Bauer notes, the trees in and around the villages were often tapped by the wife and children of the smallholder while the trees in the interior were tapped by the owner or by a professional tapper resulting in higher yields from the latter.

Control of the machinery of restriction and inaccurate evaluation of smallholders' capacity were not the only factors helping to assure that the estates would receive more favourable assessments than smallholders. Another device used was the continual allegation of smallholder overtapping and excessive bark consumption. It will be instructive to compare what was actually happening in these matters with the predictions and statements made by officials and leaders of the industry.[36]

In 1929, the first post-restriction year, a recognized leader of the industry-- chairman of the N.E.I. Committee and of the Statistics Committee of the R.G.A. as well as a past chairman of the R.G.A.--

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[34]Bauer, The Rubber Industry, op. cit., pp. 6-7.

[35]Ibid., p. 6.

[36]This discussion draws heavily on Ibid., pp. 34-37. In the discussion "only officials and leaders of the industry of undoubted integrity" are quoted. The value of the quotes to follow lies in the fact that "the comments and the views underlying them greatly influenced the assessments of various classes of producers under the international rubber regulation scheme", p. 34.

estimated Malayan smallholders' output for the year at 120,000 tons. Smallholders actually produced 200,000 tons in 1929. In this first year after restriction, the output per mature acre of the smallholders was about 480 lbs. against about 410 lbs. for the estates.[37] This "reversal" was universally attributed to overtapping by smallholders and many predicted an early fall in smallholders' output. The chairman quoted above stated in the next annual meeting (February, 1930) that

> "It is perfectly clear from the very high yields of Malayan native rubber in 1929 that the benefits which accrued from enforced resting during the years of restricted exports in the improvement of bark reserves were even greater than the advocates of restriction claimed these would be. It is likewise evident that the native smallholdings are again squandering their bark reserves at a very rapid rate and that when they come to the end of their tappable bark on the lower panels of their trees there must be a pronounced falling off in the production from these areas. I cannot say just when the contraction in output from the native smallholdings now being overtapped will come, but it must be imminent before we are through 1930."[38]

Having reached 200,000 tons in 1929, Malayan smallholders' output fell very slightly to 197,000 tons in 1930 and remained at that figure in 1931. 1932 was a year of very low prices and smallholder output fell to 177,000 tons. With rising prices, smallholder output rose rapidly reaching 220,000 tons for 1933 and 253,000 tons during the twelve months to May, 1934 when restriction was re-introduced. "The last figure was over double the capacity estimated by the chairman just quoted.[39] Others

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[37] Bauer, The Rubber Industry, op. cit., p. 34. It will be recalled that under the Stevenson Scheme estate assessments based on presumed capacity were about 100% higher than smallholders. In 1929 estate acreage was 1,820,000 acres and smallholders' was 1,124,000. Lim, op. cit., p. 328.

[38] Bauer, The Rubber Industry, op. cit., p. 34.

[39] Ibid., p. 34. The figures on smallholder production are at slight variance with those reported by Lim, op. cit., p. 328. The general conclusions are not affected by the slight variance.

in high governmental positions in Malaya echoed the industry leaders' statements. The following quote by the Deputy Registrar-General of Statistics, S.S. and F.M.S. appeared in an article in the "Malayan Agricultural Journal" in February, 1930: "During 1929 beyond doubt, and to a lesser extent during the period July-December, 1928, the smaller holdings were overtapped...and...it must be accepted as almost certain that after the wintering season in 1930 (February-March)....the rate of production is certain to fall appreciably below that of the 1929 output".[40] The following year the same officer made another attempt:

> Throughout 1930 the production per acre on smallholdings was maintained at a higher rate than that of the larger holdings. On the former economic necessity has caused the heaviest possible tapping to be adopted. There are many conflicting opinions as to how long this can be continued before it so affects the smallholders' bark position as to reduce their output seriously. In the writer's opinion-- formed after close inspection of smallholdings all over the country-- the output per acre on large estates will exceed that on smallholdings within a year or 18 months from the date of writing.[41]

In fact smallholder output per mature acre continued to exceed that of estates in the years between the Stevenson Scheme and the reintroduction of restriction in 1934. P.T. Bauer estimates that in the second half of 1933 and the early part of 1934 the excess of smallholder yield over estates was around 35-40 percent and was increasing.[42] Some of the reports on smallholding yields seem almost beyond belief. V.A. Taylor and John Stephens, in a survey on behalf of the Rubber Growers Association, report "marvelous yields" ranging to 1800 lb. per acre in the fertile

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[40] Ibid.

[41] Ibid.

[42] Ibid.

Residency of Jambi in Sumatra. Taylor and Stephens' view on smallholders' tapping practices seems to differ little from the earlier quoted authorities. They speak of "mutilated trunks often seeming to be more in the majority than otherwise" and of smallholders transferring their "mutilation" to other holdings "where the still possible bark gives an adequate yield."[43]

The Malayan Agricultural Journal in August 1931 stated in an editorial that "it has to be admitted that reliable information as regards the capabilities of rubber under smallholding conditions is almost entirely lacking."[44] It is doubtful that this statement can be accepted at face value. What seems more plausible-- based on the research for the present study-- is that the estates were aware in a general way, and without quantification, of smallholders' ability to produce high yields of rubber per acre at low cost. Control of the administrative bodies that operated rubber regulation was seized upon as a way of protecting the estates from smallholder competition. In fact the inaccuracy of statements regarding alleged overtapping and excessive bark consumption was becoming ever more apparent in the years leading up to the International Rubber Regulation Scheme of 1934. The progression of statements appearing in the Annual Reports of the Director of Agriculture illustrate the point. The 1930 Annual Report stated that "preliminary observations appear to indicate that in the effort to obtain as large a yield as possible the rate of bark consumption on smallholdings may be considerably outstripping the rate of renewal." There was less

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[43] The Straits Times, January 17, 1930, page no. blurred.

[44] Quoted in Bauer, The Rubber Industry, op. cit., p. 36.

certainty in the 1931 Report "Tapping was continuous and bark removal excessive on holdings the owners of which had no other sources of livelihood-- it was found, however, that bark consumption was considerably less than had been anticipated." The 1932 Report does not lend itself to quotation, "as its views on the subject reveal a studied vagueness."[45] Finally, in the introduction to the report of the official smallholdings inquiry of 1931-33 (signed in 1933), the Director stated that previous views on bark consumption and reserves on smallholdings had been proved to be totally wrong. In fact it was the conclusion of the official smallholdings inquiry of 1931-33 that bark consumption was below the rate of renewal. "Not one single tree was found on which tapping had to be suspended owing to lack of bark".[46] It would appear that, in addition to controlling the administrative machinery of rubber regulation, the estates enjoyed considerable success in protecting their position by continually alleging smallholder overtapping and excessive bark consumption and thereby assuring themselves more favorable assessments. Furthermore, throughout the restriction of the 1930's, to which we now turn, "alleged overtapping and excessive bark consumption (even at times of severe restriction) on smallholdings was a recurring theme of official Malayan Publications"-- the smallholdings' enquiry notwithstanding.[47]

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[45] Ibid., p. 37.

[46] Ibid., p. 36. For further details see Bauer's "Note on Bark Consumption on Smallholdings", p. 40-41.

[47] Ibid., p. 37.

Demands for a re-imposition of restriction arose very shortly after the 1928 termination of the Stevenson Scheme.[48] Early in 1930, an Anglo-Dutch Liaison Committee was formed by the British and Dutch producers' association. It was decided in early meetings that it was necessary to bring all producing territories of actual or potential importance into any new rubber restriction scheme. Following several years of discussion between Dutch and British interests and successful overtures to the smaller producing countries, the International Rubber Regulation Scheme came into effect in June, 1934. In the new restriction scheme, power lay where it had in the Stevenson Scheme. "The actual decisions on the principal features of rubber regulation were taken at a few meetings of two British and two Dutch representatives of the largest plantation enterprises."[49] In Bauer's words, the International Rubber Regulation Scheme provides another instance of "the identification of the industry with the estates." The impact of the Scheme on smallholdings was enervating and some have charged that the Scheme even threatened the continued existence of smallholder rubber. As the assessment Committees were to be composed "almost entirely of managers of company-owned estates", they did "not inspire confidence amongst the owners of

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[48]A.A.B. in the Evening Standard of September 15, 1930 takes note of those planters who accuse the Dutch of making money "on our back" during the Stevenson Scheme. But he goes on to say that "our profits were substantial enough to salve our jealousy....the Malayan Company, of which I am the chairman, paid a dividend of 40 percent and its £1 shares were marketable at £4. If this was failure, let me have that failure over again". Reported in The Straits Times, October 24, 1930, p. 9. For an opposing view of reintroducing restriction see The Straits Times article, October 17, 1930, p. 11 in which it's argued that the benefits of the Stevenson Scheme "had to be paid for dearly" and, on a more theoretical level, the article in The Straits Times of January 13, 1933, p. 9.

[49]Bauer, The Rubber Industry, op. cit., p. 76.

medium holdings. These latter felt that they are being dealt with by their natural enemies, as it were....It is not to be expected that there will be strict impartiality exercised."[50] These themes can best be evaluated by an examination of the bodies responsible for administration of the Scheme and the way in which estates' and smallholders' assessments were made.

The international Rubber Regulation Scheme, which was agreed to on 28th April, 1934 and became effective on 1st June, 1934, was an intergovernmental agreement embodied in an international treaty. The treaty was signed by the United Kingdom (on behalf of the Straits Settlements and the Malay States, Ceylon, British North Borneo, Sarawak), India, the Netherlands, France and Siam.[51] The body responsible for administering the Scheme in Malaya was headed by the Controller of Rubber, a senior civil servant stationed in Kuala Lumpur. He was assisted by the General Advisory Committee which was originally appointed in May, 1934 to discuss the allocation of the Malayan quota between the various administrations. It consisted of eight members: The Controller of Rubber as Chairman, four representatives of European estates, one representative of Chinese estates, one Malay member to represent the smallholders and an official

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[50] The Straits Times letter to the editor signed "under-assessed," May 14, 1935, p. 18.

[51] Ibid., p. 84. As was the case with the Stevenson Scheme, no attempt is made to exhaustively describe and discuss the IRRS which is dealt with in other excellent works e.g., Sir Andrew MacFadyean (ed.), The History of Rubber Regulation 1934-1943 (London: George Allen & Unwin Ltd., 1944). The impracticability of attempting such exhaustiveness is underscored by the fact that restriction was introduced with a "mass of local legislation: involving "enactments, ordinances and decrees, running into hundreds of pages for the larger territories" like Malaya and the N.E.I. See Bauer, The Rubber Industry, op. cit., p. 88. The following section draws heavily on Ibid., Chapter 7 and Bauer, "The Working of Rubber Regulation", op. cit.

to act as liaison officer for the smaller administrations (Trengganu, Kelantan, Perlis and Brunei). Before long the body became a General Advisory Committee and "most questions affecting Malaya as a whole were referred to it."[52] This committee whose "advice carried great weight", was ingeniously described as "representative" even though five estate members served on it and only one representative of smallholders.[53]

The question of a fair internal division of Malaya's quota was urgent with the inequities under the Stevenson Scheme still well remembered. One month before the Scheme became operative, the Malay spokesman addressed the F.M.S. Federal Council and "anxiously pleaded for a fair treatment of the smallholders....The Rubber Controller-designate replied that substantial justice would be ensured to all.[54] To understand why "substantial justice" was not ensured to all, we now turn to the question of assessment.

Under the 1934 Scheme each participating territory was allotted a quota. By quota was meant the agreed notional productive capacity, under reasonably favorable conditions of each individual territory as calculated on the basis of the 1929-32 exports with allowances for areas immature during this period. Exports were restricted in accordance with a "rate of release" fixed by the International Rubber Regulation Committee.[55] The preamble to the Scheme stated the scheme's objective. The agreement had

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[52]Bauer, The Rubber Industry, op. cit., pp. 90-91.

[53]Ibid., p. 91.

[54]Rubber Industry, p. 91.

[55]Bauer, The Working of Rubber Regulation," op. cit., p. 1.

been signed "with the object of reducing world stocks to a normal figure and adjusting in an orderly manner supply to demand and maintaining a fair and equitable price level which will be reasonably remunerative to efficient producers."[56] Within this framework it had to be decided how much was to be produced by estates and how much by smallholders. Estates were assessed by an assessment committee which sent questionnaires to all estates to obtain figures of their acreages and of their 1929-32 outputs. Estates were inspected only if it was felt that insufficient information was forthcoming in response to the questionnaire. The larger European estates were rarely inspected. Some estates claimed that their 1929-32 production did not represent their capacity (some mature rubber was untapped during the slump) and they "were often given additional allowances. Many estate producers were, in fact, though not formally, assessed on what they claimed as their capacity."[57] Bauer notes, that "the estates, especially the larger producers, were on the whole satisfied with their assessments."[58]

Because of their large numbers and the absence of adequate statistics, smallholdings had to be assessed on different lines. "They were formally assessed by the district offices on reports of inspectors who were either unemployed planters or estate managers inspecting in their spare time."[59] Twenty inspectors were assigned the task of inspecting

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[56]Quoted in Bauer, The Rubber Industry, op. cit., p. 84. See p. 85 for the basic quotas of the participating countries.

[57]Ibid., p. 91-92. Also see figures on scale allowances for rubber immature during 1929-32.

[58]Ibid., p. 92.

[59]Ibid., p. 93. The following description of smallholder assessment draws heavily on Chapter 7.

about one and a quarter million acres within a period of a few months. An interview with a "well-known Chinese estate owner" provides a description of the inspection. "Most of these inspectors, as was to be expected, could not afford to spend much of their time in each estate and therefore they usually took a casual walk round the property at the end of which they formed their opinion of the potential yielding capacity."[60]

The towkay just quoted said that there was no appeal against the decisions of the assessment committee "though provision was made in the ordinance for appeal to the Rubber Assessment Appeal Committee."[61]

A subsequent letter to the editor in the Straits Times amplifies these matters: "Your towkay is misinformed... An owner may at the discretion of the assessment committee, be allowed to appeal but he must first deposit the sum of $250 which amount will be forfeited by Government if, in the opinion of the assessment committee, after a reinspection of his estate by another Panel Inspector, the owner's appeal is considered to be 'frivolous' in the legal sense of that word. Very few medium holders can afford to risk such a sum or have such an amount of ready cash." The writer concludes his comments on assessment by saying".... the committee will only give you the total amount of your assessment. They will not tell you how they arrived at it or, if inspected, allow you to see the Panel Inspector's Report."[62]

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[60] The Straits Times, April 22, 1935, p. 11.

[61] Ibid.

[62] The Straits Times, May 14, 1935, p. 18. The letter quoted is the same that was earlier quoted and signed by "under-assessed."

The assessments of smallholdings were expressed in units and not in pounds per acre.[63] "A unit was the assumed yield per acre of standard smallholders' rubber; it actually represented a share in the total quota allotted to smallholders. The pound per acre value of a unit could not be exactly told beforehand; it emerged only after the total number of units was known and set against the quota for smallholders."[64] Official directives were issued by the Survey Department. As reported in the 1934 Annual Report of the Controller of Rubber, they reveal that the Malayan authorities' views on smallholders' productivity had changed little since the late 1920's and that the lessons of the smallholdings inquiry and of the high yields of 1929-33 were ignored. Bauer goes so far as to say that "the official directives were an open invitation to inspectors to under-assess the smallholders."[65] Rubber capable of yielding over 400 pounds was deemed to be first class rubber and was to be termed class A. Class A rubber was to be assessed at four units with fewer units to be granted to smallholdings in categories B, C and D. An A' class, capable of yielding 500 pounds, was recognized but was also to receive only four units. Thus in practical effect, 500 pounds was to be regarded as the maximum yield for smallholders' rubber even though less than a year before the smallholdings enquiry found an average yield of 477 pounds with a maximum of 889 pounds. Inspectors were told to discount yields based on too drastic tapping systems which could not be maintained. Also when an inspector's valuation resulted

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[63] Bauer, The Rubber Industry, op. cit., p. 93, states that this was done "for administrative reasons" without offering further explanation.

[64] Ibid.

[65] Ibid.

in a fraction this was to be rounded off to a lower figure unless the fraction exceeded .75. Thus 9.7, for example, was to be taken as 9 units. Furthermore, there were to be no allowances for untapped trees such as those given to estates for areas out of tapping. As if this were not enough, inspectors were also instructed that areas under blukar (secondary jungle) did not need to be inspected and were only to be reported as overgrown rubber. Yet it had earlier been established in Malaya and the N.E.I. that rubber under blukar yielded satisfactorily, especially after being cleaned. Owners of densely planted holdings and those with heavy undergrowth thus fared worst. Such holdings, being considerable trouble to inspect carefully, were often omitted altogether.[66]

At this point, it would be helpful to know the basis of the division of the Malayan territorial quota between estates and smallholdings. In fact, the Controller of Rubber simply published the division each year without stating how it had been determined. P.T. Bauer, one of the foremost authorities on Malayan rubber, speaks of his "extensive search" which "failed to trace any public statement on the basis of the decision."[67] "The confidential minutes of the General Advisory Committee ...contain the only information which could be traced" and "these seem

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[66] Ibid., p. 94.

[67] Ibid., p. 95, citing footnote 2. "It [the search] covered the complete files from 1923 to 1940 of the following official documents: the Annual Reports of the Controller of Rubber, of the Chief Secretary to the F.M.S. Government, of the Director of Agriculture, of each of the Residents in the F.M.S., of each of the Advisers to the U.M.S., of the Rubber Research Institute of Malaya, as well as the Proceedings of the Federal and Legislative Councils, together with the complete files for these years of the Malayan Agricultural Journal, The Planter, the Straits Budget (the weekly edition of the Straits Times), the R.G.A. Bulletin, the India-Rubber Journal, the India Rubber World, the (New York) Rubber Age and the Rubber News Letter of the U.S. Department of Commerce. Nor could the information be found in the official minutes or the correspondence of the I.R.R.C., nor among the many private papers of the leaders of the industry to which the writer has had access."

to suggest that after the estates were assessed the sum total of their assessments was deducted from the Malayan basic quota and the smallholdings were given the residue."[68]

Newspaper accounts from the time provide some insights and appreciation of the antipathy between estates and smallholdings. The earlier quoted well-known Chinese estate owner relates that "the result of the working of regulation was that those estates which were on full tapping [during the basic years 1929 to 1932] and could prove their 'crop-figures' were in the happy position of being over-assessed in most cases. That was the position of European managed and public limited companies. During the four basic years a large number of moderate-sized plantations had been rested, owing to the low price of the commodity. The assessement committee being inclined to issue coupons based on the estimates of the crop figures, the result had been that, in the majority of cases, assessments did not represent the true yielding capacity of their estates....the middle sized plantations were mostly owned by private Asiatic individuals..."[69]

The earlier quoted "under-assessed" quotes the manager of a company owned property: "most places up here, as far as I can see, are, if anything, over-assessed..." Under-assessed also relates that the manager stated that "to his surprise his estate had been granted an increase for 1935, that this assessment exceeded in amount the average crop of the basic years and that if there were a 100 percent release he could not possibly harvest the full amount."[70]

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[68] Ibid.

[69] The Straits Times, April 22, 1935, p. 11.

[70] Ibid., May 14, 1935, p. 18.

Corroboration of the differential treatment accorded large and small rubber producers is provided by a European who describes himself as "a proprietary planter on a small scale" who has "had to suffer from under-assessment since the present control scheme was brought into force.... the reason for this unjust discrimination against the producers of at least half, if not more, of Malaya's rubber is the fact that the over-assessment granted to the majority of company-owned estates absorbed so big a proportion of Malaya's quota that it was impossible to give the small owners a fair assessment." He concludes bitterly "after all the regulation scheme was only introduced with the object of saving the company-owned estates. To all intents and purposes the Assessment Committee is run by men representing the interests of rubber companies."[71]

An Asian, Thank Me Tuan, contrasts his treatment in receiving a small increase for 1937 which still left him 25 lb. below the 500 lb. per acre maximum to that of a manager who told him "that he had been granted the full 500 lb., much to his surprise."[72]

Another smallholder tells of receiving a "reasonable assessment" for 1934 but complains that, though a "young estate", "no increase was allowed for 1935 and no appeal permitted" even though "rubber of this age increases its yield by at least 50 lb. per annum."[73]

Having described the institutional infrastructure that administered rubber regulation in the 1930's and having examined its mechanics,

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[71] Ibid., January 16, 1937, p. 16, letter to the editor.

[72] Ibid.

[73] Ibid., June 25, 1935, p. 16, letter to the editor signed by "another-of-the-under-assessed." Many other letters appeared in The Straits Times. None, in the writer's view, was able to make a satisfactory case that estates and smallholders were treated equally.

some observations regarding the effects of restriction can be quantified. As a starting point the figures on page 214 show in conjuction with the earlier cited data-- how well the smallholders were able to hold their own against estates in the absence of restriction.

Table II[74]

Output[a] of Certain Classes of Producer, January--May 1934
(Seasonally adjusted figures; long tons)

	Malaya		N.E.I.		London price (pence per lb.)
	Estates	Smallholdings	Estates	Natives	
January	19,800	17,400	13,100	15,300	4.4
February	23,600	18,800	15,800	17,600	4.9
March	22,100	24,000	17,600	21,300	5.2
April	22,200	23,500	17,000	24,400	5.9
May	22,000	26,800	16,400	29,400	6.4

[a]Exports for N.E.I. natives

The figures should have disposed of the idea that smallholders' bark reserves were nearing exhaustion. They also refute convincingly the suggestion of a backward bending supply curve and the general notion that peasant producers do not respond to normal incentives as suggested by Boeke and others.[75] The figures on pages 215 - 217 confirm the deterioration of the smallholders' position relative to the estates after the re-introduction of restriction.

[74]Bauer, The Rubber Industry, op. cit., p. 81.

[75]See the discussion of these and related points in Chapter I.

Table I [76]
Internal Distribution of the Malayan Territorial Quota,[a] 1934-40

	Estates		Smallholdings	
	Thousand tons	Percent of Maloyan quota	Thousand tons	Percent of Malayan quota
1934	312.5	61.1	199.1	38.9
1935	334.6	62.5	200.4	37.5
1936	352.6[b]	61.7	219.4	38.3
1937	373.2	61.8	230.9	38.2
1938	377.4	61.7	234.5	38.3
1939	395.9	61.9	244.0	38.1
1940	407.4	62.3	246.4	37.7

[a]The total of these quotas slightly exceeded the Malayan territorial quota, and this necessitated the eventual introduction of internal cuts (reductions in rates of release below the internationally agreed rate).

[b]For administrative reasons, some properties owned by Indian moneylenders were transferred in 1936 from the estate to the smallholdings quota. Their assessments totalled some 6,000 tons, and to this extent all the tables slightly overstate the true smallholdings quota from 1936 onwards.

Table II
Quotas of Malayan Estates and Smallholdings expressed in lb. per acre, 1934--40
(To the nearest 5 lb.)

	Estates		Smallholdings	
	Per acre	Per mature acre	Per acre	Per mature acre
1934	350	385	340	365
1935	375	405	340	355
1936	395	420	375	385
1937	415	440	395	400
1938	425	450	400	405
1939	430	470	405	420
1940	435	500	405	425

The figures in this table are based on the records of the I.R.R.C. Allowance has been made for the areas replanted after 1934 and newly planted after 1938. As all calculations based on acreage statistics, these figures are liable to a margin of error which is, however, certain to be small and not in excess of 2-3 percent.

[76]Footnote on following page.

The following three tables show the result of the quota division.

Table III

Annual Output of Rubber per Mature Acre of Malayan Estates and Smallholdings, 1929-40
(Lb., to the nearest 5 lb.)

	Estates	Smallholdings	Smallholdings as percent of estates
1929	410	485	118
1930	380	460	121
1931	375	445	119
1932	365	385	106
1933	355	465	131
1934	Regulation introduced during the year.		
1935	295	240	81
1936	275	230	84
1937	375	330	88
1938	290	200	69
1939	290	200	69
1940	410	370	90

These figures have been calculated by dividing the actual output by the mature area, i.e. by the acreage five or more years' old. The sharp fluctuations in the last column in 1932-33 reflect the smallholders' reaction to the very low prices of 1932 and to the recovery of 1933.

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[76](From previous page) The following five tables are from Bauer, The Rubber Industry, op. cit., pp. 96-98 and "The Working of Rubber Regulations," Economic Journal, September, 1946, pp. 391-414. These Tables appear in both.

Table IV

Shares of Estates and Smallholdings in Malayan Rubber Production, 1929--40

	Estates		Smallholdings	
	Tons	As percent of total Malayan production	Tons	As percent of total Malayan production
1929	246,000	55.2	200,000	44.8
1930	236,999	54,6	197,000	45.4
1931	240,000	55.1	197,000	44.9
1932	240,000	57.6	177,000	42.4
1933	240,000	52.2	221,000	47.8
June-Dec. 1933	149,000	50.9	144,000	49.1
June 1933-May 1934	251,000	49.7	253,000	50.3
Jan.- May 1934	102,000	48.3	107,000	51.7
	Regulation introduced			
June-Dec. 1934	160,000	59.7	108,000	40.3
1935	243,000	64.0	137,000	36.0
1936	233,000	63.9	132,000	36.1
1937	314,000	62.4	189,000	37.6
1938	246,000	68.1	115,000	31.9
1939	245,000	67.7	117,000	32.3
1940	334,000	60.8	215,000	39.2

Table V

Comparison of Previous Output[a] of Malayan Estates and Smallholdings with their 1934 Quotas
(Tons, to the nearest 5,000 tons)

	Estates	Small-holdings	London price, pence per lb.
(a) Output for calendar year 1933	240,000	220,000	3.2
(b) Output for twelve months ending May 1934	250,000	250,000	4.5
(c) Annual rate of production based on seasonally corrected output, March-May 1934	265,000	300,000	5.8
(d) 1934 quotas	310,000	200,000	---
(e) (d) as percent of (a)	129	91	---
(b)	124	80	---
(c)[b]	117	67	---

[a]These are production figures; stock changes are allowed for.

[b]In the spring of 1934 the price was nearer to the price visualised under restriction than it had been in 1933. The quotas of different classes of producer may be considered fair if their ratio is roughly proportionate to approximate unrestricted outputs at the prices envisaged under restriction. This lends special interest to the comparison of (c) with (d).

Thus control by the estates of the rubber regulation machinery and seemingly intentional underassessment of smallholders meant that a rural sector in indigenous hands was not allowed to realize its full potential.

Here it should be added, parenthetically, that neither the estates or smallholders were realizing their full potential under the 1930's regulation scheme. Both smallholders and estates were producing only a percentage of their quota. It will be recalled that the quotas were based on notional productive capacity as calculated from 1929-32 export figures and that the procedure by which the quotas were made probably favoured the estates. [77] Once the quota was set, a "rate of release" or "permissible export percentage" was set under the terms of the International Rubber Regulation Scheme.[78] Thus "rubber production during the year was regulated in accordance with the International Agreement." [79] Several examples will show how this worked. For the first quarter of 1935, the permissible export percentage was set at 75%. The figures, respectively, for the 2nd, 3rd and 4th quarters were 70, 65 and 60%. [80] Thus it's not surprising that smallholders production for 1935 was 137,000 tons which is 68.5% of the smallholder quota for that year of 200,400 tons (the data on quotas appears in the earlier discussed tables). Estate production for that year was 243,000 or about 72% of the estate quota of 352,600 tons. In the years of the scheme, production as a percentage of the quota would rise or fall as the rate of release or permissible export

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[77]See the earlier discussion in the present chapter. Here it should be stressed for clarification that we are discussing the internal division of the quota assigned to Malaya. The separate question of Malaya's quota vis a vis the other countries in the International Rubber Regulation Scheme is discussed in McFadyean, op. cit. and in the 1935 Colonial Office Report (London: HMSO, 1935), p. 28 and the 1936 Colonial Office Report (London: HMSO, 1936), p. 29.

[78]See McFadyean, op. cit., Chapter VIII for further discussion of the mechanics of the scheme.

[79]1937 Colonial Office Report (London: HMSO, 1937), p. 29.

[80]McFadyean, op. cit., p.94.

percentage rose or fell. In 1937, for example, the rate of release was 75% in the first quarter, 80% in the second and 90% in the third and fourth quarters. Smallholders produced about 82% of their quota (189,000/231,000) and estates produced about 84% (314,000/373,000).[81]

An important additional factor in stifling the "propensity to innovate," earlier described by Rudner as "demonstrably present" was the government's land and planting policy. In the 1920's under the Stevenson Scheme complete prohibition or substantial curtailment of new planting were "official policy."[82] With a few exceptions no land for rubber planting was alienated during the Stevenson Scheme and thus the lawful new planting which occurred was largely confined to owners of land already alienated but not yet planted with rubber. "Estates undertook some new planting on unplanted reserve land which many of them had. Smallholders very rarely have unplanted reserve land."[83] The small amount of planting undertaken by smallholders was on land which had been under other products such as coconuts and fruit trees and was at the cost of destroying another source of income. Even in the two year period from 1928 to 1930 when applications for the alienation of land for new planting were entertained, "administrators were reluctant to alienate land for rubber planting, particularly to smallholders."[84] 1930 to 1934 saw a reintroduction of the policy of allowing new planting only on land already alienated but not yet under rubber. The 1934 International Rubber Regulation Scheme prohibited new planting through 1938 though in 1939-40, producers were permitted new planting up to five percent of their 1938 acreage.

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[81] Ibid., See for additional figures and discussion as well as 1937 Colonial Office Report, op. cit., p. 29.

[82] Bauer, "Report on a Visit . . .Malaya," op. cit., p. 18. The following discussion draws heavily on that article.

[83] Ibid., p. 14.

[84] Ibid.

Official policy regarding replanting (as opposed to new planting) also operated to the benefit of the estates and to the considerable harm of smallholders.[85] For economic and technical reasons replanting was impracticable on smallholdings but was feasible on estates where it was widely adopted. The economic reason behind the smallholders' inability to replant was lack of the capital required to "pay the heavy expenses involved, especially the cost of manuring, which is necessary for successful replanting, but also to bridge the loss of income from the felling of old trees to the maturity of the new stand."[86] A rubber tree is not tappable until five or six years after planting and is fully mature only after another four or five years. Thus replanting involves five years' loss of income and several years of reduced income. Replanting was feasible only for producers with ample working capital i.e., the estates.[87]

"The second reason for smallholders' inability to replant is the technical impossibility of replanting successfully part of a holding of a few acres, as the area replanted would be closely surrounded by mature trees which would intercept the sunlight and whose roots would

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[85] It is difficult to say with certainty that the replanting provisions were intentionally drawn to favor the estates. Some members of the Rubber Regulation Committee of the R.G.A. opposed the granting of permission to replant seeing it as a concession to the Netherlands. Bauer offers the following opinion. "...it would appear that, at any rate at first, these measures were not a Machiavellian plot on the part of the estate representatives for the suppression of native competition." While noting that the proposals were "workable and apparently equitable" he says that the "officials....were....somewhat unfamiliar with the economics of smallholders rubber." Bauer, The Rubber Industry, op. cit., p. 173. The latter factor had important long-term implications for smallholder rubber.

[86] Ibid., p. 174.

[87] The Rubber Research Institute of Malaya estimated in 1938 that a period of twelve years was required to recoup the loss of income and the cash expense of replanting. See Ibid.

compete for food with the undeveloped rootlets of the newly-planted trees.... growth is greatly retarded when the sunlight is intercepted."[88]

It should also be noted that the official provisions regarding replanting required a detailed statement in writing setting out the exact acreage and location of the area to be replanted, the age of the trees, the material used and other complex details. The majority of the smallholders were illiterate.

In view of the above factors it is hardly surprising that in the 1930's, the estates alone replanted on a substantial scale. The reaction of the authorities to complaints of the unfairness of replanting provisions was hostile. In the late 1930's, one member of the I.R.R.C. argued that new planting was demanded by those too lazy to face the careful thought and difficult decisions involved in replanting.[89] Further insight into the authorities' view of smallholders is provided in the minutes of the I.R.R.C. Renewal Sub-Committee: "There are of course the small Malay and Chinese producers who are not represented in London, but on the broad questions which will arise in regard to renewal [of the Scheme] their interests are not likely to diverge from those of the European estates."[90] The foregoing has shown that, as in the division of quotas, there was in fact a wide divergence of interests over the planting provisions.

The implication of rubber restriction for the relative positions of estates and smallholdings was summed up in earlier tables showing the latter's percentage of rubber production decreasing under restriction.

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[88] Ibid.

[89] Ibid., this is reported on p. 177.

[90] Ibid.

The implications of the planting provisions for both Malaya's overall competitive position and the relative position of estates and smallholdings can also be shown in several tables. The table on page 222 shows the modest growth in rubber acreage in Malaya between 1925 and 1940. During this period, Malaya's share of rubber production fell from approximately one-half to one-third.

Table I

Changes in Areas under Rubber, 1925-40 [91]
(In thousand acres.)

	1925	1940	1940 as percent of 1925	Percentage of 1940 area over 15 years old.
Malaya	2,641	3,481	132	70
Ceylon	497	639	129	74
Netherlands East Indies	1,730	4,767	275	32
All other territories	540	1,370	254	38

It is also noteworthy that at the end of this period, the age composition of other countries' planted area was much more favourable than Malaya's. As shown above, seventy percent of Malaya's rubber trees were over 15 years old. This contrasts to 32% for the N.E.I. and 38% for all other territories.

The still further deterioration of Malayan smallholders' position is shown in the table on page 223. The contrast with N.E.I. natives is especially striking. Between 1925 and 1940, smallholders in

[91] Bauer, "Report on a Visit to the Rubber Growing Smallholdings of Malaya", op. cit., p. 15.

Table II

Changes in Areas under Rubber, 1925-40[92]
(In thousand acres.)

	1925	1940	1940 as percent of 1925	Percentage of 1940 area over 15 years old
Malayan estates	1,559	2,107	135	65
Malayan smallholders	1,082	1,374	127	79
Total Malaya	2,641	3,481	132	70
Ceylon estates	321	359	112	82
Ceylon smallholders	176	280	159	63
Total Ceylon	497	639	129	74
Borneo estates	69	92	133	70
Borneo smallholders	107	280	262	38
Total Borneo	176	372	211	46
British estates	1,949	2,558	131	67
British smallholders	1,365	1,934	142	71
Total British	3,314	4,492	136	69
Netherlands East Indies estates	980	1,567	160	49
Netherlands East Indies natives	750	3,200	425	23
Total Netherlands East Indies	1,730	4,767	275	32
French Indo-China estates	83	311	375	19
French Indo-China smallholders	7	19	275	35
Total French Indo-China	90	330	365	20

Malaya increased their acreage by only 27 percent while natives in the N.E.I. increased theirs by 325%. Furthermore 79% of Malayan smallholder acreage was over 15 years old as compared to only 23% in the N.E.I. This resulted largely from Malaya's having followed unilateral policies under the Stevenson Scheme. The latter, by bringing about higher prices in the 1920's, greatly stimulated the extension of native areas in the N.E.I.

[92] Ibid., p. 16.

One of the main conclusions to emerge from the preceding discussion then is that Malaya's position as a rubber producer was seriously eroded in 1920-40 as a result of the restriction schemes. At the same time, under restriction, the entrepreneurial promise of smallholders was sacrificed to protect the estates' position. The latter was of especially great import for the evolution of Malayan dualism. The rapid growth of smallholder rubber that might reasonably have been expected in the twenties and thirties would likely have meant a general growth of the money economy and other desirable repercussions suggested earlier.[93] In fact, smallholder rubber was to be denied its florescence by the institutional infrastructure. Explicit emphasis on the role of institutional infrastructure, and in particular the use of power under the Stevenson Scheme and the International Rubber Regulation Scheme goes a long way in explaining the perpetuation of dualism in Malaya between 1920 and 1940.

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[93] Chapter XI will expand these points.

Chapter VIII

RETRENCHMENT

Another aspect of government policy to be examined for the 1930's is the planned program of retrenchment announced by the government in 1932.[1] This is an important topic in understanding the hardship of the 1930's because the notion ex isted through at least 1930 that public works might be used to alleviate unemployment. For example, at a meeting of the Legislative Council in Penang, it was reported in July, 1930 that "Government does not propose to create a special department to deal with the problem of unemployment but that it is watching the situation carefully and it is prepared to accelerate execution of public works if necessary." In discussing the hundreds of unemployed Chinese who had drifted into Kuala Lumpur in mid-1930, the Chinese Unemployment Relief Fund Committee asked the Government for help in supplying free water, free medicine, etc. while announcing its intention to "provide labourers to Government as and when required for relief work and to contractors in need of labour." [2] In fact, with "unemployment of the labouring and clerical categories . . .advancing steadily" in the early 1930's, Malaya had "no such big-scale public works undertakings . . .as are to be found in Great Britain and in the United States." [3] Thus it would indeed seem pertinent to inquire as to whether the policy prescribed regarding retrenchment, and in particular public works, in the 1930's contributed significantly to unemployment and a general diminution of welfare. [4]

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[1]The program was signaled by the convening in 1932 of a Retrenchment Commission. By most measures 1932-33 appears to be the trough of the Depression in Malaya and our concern is with what happened after that.

[2]The quotes are from the Malay Mail, July 8, 1930, p. 9 and July 17, 1930, p. 8 respectively.

[3]The Straits Times, Dec. 15, 1930, p. 18, letter to the editor. Public works projects in the United States, under agencies such as CCC, WPA, PWA, etc. were an integral part of President Roosevelt's New Deal. Millions of U.S. citizens were employed on conservation and public (footnotes continued on p. 225.)

The 1931 Census Report provides anearly indication of the retrenchment already underway. The data reveal that employment in "public administration and defense" fell from 23,014 in 1921 to 11,691 in 1931 in the F.M.S.; from 14,157 to 10,476 in the Straits Settlements. Employment in this category also fell markedly in the U.M.S. [5] Those affected most adversely were the Indians who were the most numerous "public servants" though retrenchment would ultimately affect all of Malaya's communities. The retrenchment program, formally begun in 1932, called for reductions in almost all areas of government expenditure. In the year of the convening of the Retrenchment Committee alone, the called for reduction in expenditure was over $10,000,000.[6] The program of retrenchment is described below.

The Retrenchment Commission appointed by the Federated Malay States Government in March, 1932 addressed itself directly to the problems posed by the economy's dislocation. Its members were charged with the responsibility of examining the country's sources of taxation and "taking into account such modified or new taxation as may be recommended, to estimate the probable mean revenue during the next five years." [7]

(Footnote 3 cond't from previous page) works projects under these agencies. In the U.K., government expenditure on housing, which was £47.5 million in 1932 and £45.8 million in 1933, grew to a level of £70.5 million in 1937 and £80.3 million in 1938. A.T. Peacock and J. Wiseman, The Growth of Public Expenditure in the United Kingdom (London: Oxford University Press, 1961) p. 92. See for additional figures and discussion.

[4]The main concern in this chapter will be to examine the extent to which retrenchment occurred. Chapter X will considerably expand the discussion of welfare.

[5]The Census of British Malaya, 1931 (London: Waterlow and Sons, Ltd.) pp. 247, 249 and 251. Though there were undoubtedly large declines in this employment category, there is also reason to believe that the 1931 figures are incomplete. For example, the 1931 Census Report shows no employees in "municipal administration." See p. 249.

[6]The Final Report of the Retrenchment Commission (Kuala Lumpur: F.M.S. Government Printing Office, 1932) pp. 82-83.

[7]Ibid., p. 1.

Also, "having regard to present and probable future economic conditions," the commission was to report "how best in the interests of the administration of the Federated Malay States to adjust the annually recurrent expenditure, as set out in the published Estimates for 1932, to the level of the probable future revenue."[8]

The Commission, as well as the Colonial Office in London, took cognizance of the unbalanced dualistic economy, with excessive reliance on tin and rubber, as evolved by the early '30's. The Colonial Office Report of 1932 notes: "the easy wealth that has accrued in the past from tin and rubber induced a concentration of vision and effort on these two commodities to the exclusion of others with the result that the Peninsula imports much that it might itself produce."[9]

The Retrenchment Commission undertook a calculation of national income for the 1930's as a prerequisite to estimation of the probable mean revenue for the period 1933 to 1937. As a "sufficiently close approximation" to national income, the Commission accepted the "sum of two quantities more readily capable of measurement, viz., the figures of primary production and the gross profits of foreign trade."[10] Exported produce is assessed at f.o.b. values and produce locally consumed at consumers' rates.

> "The gross profits of foreign trade are represented by the difference between retail prices (ex import duty) and declared import values and we have assumed that this difference is 25% of the declared value, the rate being based on an examination

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[8] Ibid.

[9] Great Britain Colonial Office, Annual Report on the Social and Economic Progress of the People of the F.M.S. (London, H.M.S.O., 1932).

[10] F.M.S. Retrenchment Commission Report, op. cit., p. 2.

of the quantities, declared import values, and retail prices of certain representative commodities. By assessment in this manner, all trade costs, rents and net profits rank, as they should, for income, though they are not separately determined and appear merely as price differences."[11]

On this basis, the national income for 1931 is computed as follows:

NATIONAL INCOME FOR 1931[12]

	(thousands $)	
A. Production		
(a) Agriculture:		
Rubber	54,221	
Coconuts and Copra	8,773	
Padi	2,791	
Palm Oil	1,098	
Other Agricultural Produce	5,807	
Livestock and Milk	5,263	
		77,953
(b) Forest produce		4,049
(c) Minerals:		
Tin	51,259	
Gold	1,209	
Coal	2,315	
Other Minerals	154	
		54,937
(d) Fisheries		6,250
(e) Manufactures		5,830
Add for difference between wholesale and retail prices		5,000
	TOTAL	154,019
B. Profits of Foreign Trade		26,000
	GROSS INCOME	$180,000,000

[11] Ibid.

[12] Ibid., p. 4. The national income thus calculated was, as noted, of interest to the administrators as a rough measure of what the tax base was likely to be in the 1930's. (Continued on the next page.)

The Retrenchment Committee goes on to use this data to estimate the income for each of the years 1932-1937 while noting that "the economic position is dominated by tin and rubber,"[13] and that this domination is not likely to be diminished in the near future.

> "Whatever the remote future may bring, we see no hope of the establishment of new products which will in the five years we are considering contribute to income anything commensurate with the past or even the present contributions of rubber and tin. The potential production of rubber and tin may be assumed to be fairly constant for the next five years and the variable factor is the price . . . the prosperity of the country is therefore bound up with the prices of rubber and tin, world-prices which are entirely beyond local control."[14]

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[12](cond't) To arrive at a more complete estimate of national income in the early 1930's, it might be interesting to add to the Commission's calculations an estimate of income in kind (though such income was not of interest for the Commission's purposes). To arrive at this, we can focus on rice--the most important item in discussing income in kind. The production of rice for 1930-31 (reported in Malayan Agricultural Statistics) was 264,202 tons and for 1931-32, it was 295,948 tons (times 16.8 = 4,438,593 and 4,971,926 piculs respectively). The price of rice was approximately $4.00 per picul ($4.05 for Siam, No. 2, $3.74 for Rangoon, No. 1 and $4.08 for Saigon, No. 1 as reported in Malayan Agricultural Statistics). Thus the dollar value of rice production would be somewhere in the range of about $17,754,000 to $19,888,000. This contrasts to the $2,791,000 figure for rice as reported in the Retrenchment Committee Report and suggests the needed adjustment to arrive at a more complete measure of national income.

[13]Ibid., p. 3.

[14]Ibid., p. 3-4.

With the caveat that the figures are intended to "represent tendencies rather than precise numerical forecasts," national income is then presented in tabular form--though again it should be stressed that these figures are only projections.

NATIONAL INCOME[15]
Figures in millions of $

	1931	1932	1933	1934	1935	1936	1937
Rubber	54	38	37	45	53	60	63
Tin	51	32	35	47	56	60	69
Other Produce	49	52	55	58	61	64	67
Profits of Trade	26	18	18	23	27	30	33
NATIONAL INCOME	180	140	145	173	197	214	232

Regarding tax revenue as a function of national income, it is the latter figure thus calculated that places a limit on what can be collected as revenue, and the mean value of that national income for the years 1933-1937, the Commission notes, is $192 million. Following some philosophical musing on what is a "proper and reasonable" ratio of taxation to income, the Commission settles upon 15% though the fear is expressed that 15% may be "somewhat high for countries in need of development by private enterprise."[16]

Applying the 15% figure to mean income of $192 million, the Commission estimates that average revenue from taxation for 1933-1937 will be $28.8 million. To this must be added anticipated revenue deriving from fees, reimbursement by other states, pension contributions, municipal revenue, commercial undertakings, rents on government property, interest, miscellaneous receipts and land sales bringing estimated

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[15] Ibid., p. 5.

[16] Ibid., p. 6. See for further discussion of this question.

average revenue for 1933-1937 to $43.7 million per year.[17] The report regards this as the figure below which annually recurrent expenditure must be kept. The magnitude of the adjustment required, that is the reconciliation between income and outgo, is appreciated when one considers that the published Estimates for 1932 set expenditure at $56 million.[18] In bringing about the required reconciliation the Commission's options were obvious. It could increase taxes or add new ones; it could reduce expenditures.

In the Commission's classification of revenue, Class I revenue which consists of duties, taxes and licenses account for 67.7% of total revenue. The balance derives from fees of court or office, receipts of commercial undertakings, revenue from government property and other items.[19] Class I, then, consists of impositions made for the express purpose of producing revenue. That revenue designated as Class I, the report goes on to say, "contains practically the whole of the revenue from taxation pure and simple, and if any modification of taxation or new revenue is possible it is here that we must look for it. The other classes offer little opportunity for modification."[20]

Noting the theoretical equitableness of an income tax, the Commission briefly considered its introduction in Malaya. One of its advantages would be that registered companies would be brought within the scope of taxation and that would remedy the following situation that

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[17] Ibid., see p. 7 for details.

[18] Ibid., p. 15.

[19] Ibid., p. 8. See for more detail.

[20] Ibid.

had emerged with the growth of dualism in Malaya: "the profits of British and foreign companies operating locally but incorporated abroad have in the past been spent mainly outside the country and have contributed nothing to revenue."[21] Those factors adduced against the introduction of an income tax were the "possibilities of evasion under local conditions . . . practical difficulties and the costs involved." The Report concludes that "this is not an opportune time for the introduction of the tax."[22] This left the F.M.S. with four major sources of taxation from which greater revenue might be realized-- export duties, excise, land revenue and import duties. It appeared in 1932 that the Government had little reason to be sanguine regarding the possibilities for raising more revenue from these sources. Regarding export duties, the Commission notes that no further extension of scope is possible as export duties already cover 95% of the exports.[23] The excise revenue at the time was derived from chandu, toddy, spirits and matches. As chandu and toddy were under monopolistic control, the Commission regarded a change in policy in respect to these items as outside their province. The Report made no recommendation regarding spirits, but recommended an excise duty on matches equal to two-thirds of the import duty.

The question of land revenue was an especially vexatious one. That part of land revenue which was included in Class I consisted of rents on land alienated under the land and mining laws. The fall in the value of tin and rubber output, however, threatened the general revenue with serious depletion of rent income which had hitherto been a

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[21] Ibid., p. 13.

[22] Ibid., pp. 13-14.

[23] Ibid., p. 9.

very stable element of revenue. The area under rubber was approximately 1.5 million acres or 70% of the whole extent of cultivation of the country.

> "The rent of this area amounts to about 3.25 million dollars. When the price falls below the cost of production every estate which is producing is living on capital to the extent of the difference; if it is not producing, it is paying rent and maintenance charges out of capital...judging by the considerable arrears of land rent last year and the slow progress of collections so far this year there seems little doubt that many owners are at the end of their resources. As capital is exhausted the revenue from rents will diminish."[24]

Considering the fact that enforcement of the procedure for the recovery of rent would involve loss of revenue to the extent that land reverted to the state, the idea of partial remission of rents was entertained by the Commission. This would, of course, also involve losses to the state. A determination of which would be the more beneficial course turned on questions of the size of the proprietors' cash reserves, the possibility of finding purchasers at sales, the extent to which remission would reduce default and other incalculable factors. Expressing fear of the "dire economic consequences of wholesale dispossession," the Commission's final recommendation was that "the question of high rents should be considered with a view to adjustment of rates to meet the abnormal conditions of the times."[25] Later in 1932, as earlier mentioned, a waver of all quit-rents in excess of $2 per acre was granted.[26]

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[24] Ibid., p. 11. D. H. Grist, An Outline of Malayan Agriculture (London: Crown Agents for the Colonies, 1936) pp. 19-20 discusses how rent was assessed for various crops. For rubber the rent per annum was $1 per acre for the first six years and thereafter $4 per acre. The important point here is that the government was afraid the companies would be unable to pay the rent.

[25] F.M.S. Retrenchment Commission Report, op. cit., p. 12.

[26] Colonial Office Report, 1933, op. cit., p. 101. See also Grist op. cit., p. 34.

In considering the possibility of raising additional revenue by import duties, concern was expressed that the selection of commodities for taxation should not endanger the health of the community-- though it was contended that revenue could not be raised from luxuries alone. Three criteria were established in regard to import duties:

(a) taxation should be proportionate to means.

(b) the public burden should not be increased by more than what accrues to revenue.

(c) the tax should be collectable without considerable additional cost to the state.[27]

As the trade in rice was extensive and diffused and did not lend itself readily to port concentration, a tax on rice was rejected as not conforming to criteria (b) and (c). The table below summarizes the items selected for the imposition of import duties:

IMPORT DUTIES[28]

Milk	45 cents per case of 48 tins
Tea, imported loose in bulk in jute sacking or matting packages	2 cents a pound
Tea, otherwise imported	8 cents a pound
Cabinetware and furniture	10% ad valorem
Oil Cloth and linoleum	10% ad valorem
Straw, grass and such manufactures	10% ad valorem
Fireworks and crackers	5 cents a pound
Fuel, crude and diesel oils	1 cent a gallon

The above items were chosen as not being essential to maintenance of health and as conforming to the three criteria. Articles already subject to import duty were coffee, butter, margarine, lard, sugar, intoxicating liquors and tobacco.

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[27] F.M.S. Retrenchment Commission Report, op. cit., p. 10.

[28] Ibid., p. 15.

Having adjusted taxes to the extent possible, there remained the task of reducing the annually recurrent expenditure--estimated at $56 million in the published 1932 Estimates--to a figure below the $43.7 million of expected revenue. The Commission began this task by lamenting the too rapid growth of expenditures in the years leading up to the 1930's and says in particular that recurrent charges were allowed to rise too rapidly. Once again, the country's excessive dependence on rubber is explicitly noted: "It appears . . . to have been overlooked that revenues based on prices of rubber far above an economic price were necessarily and inherently unstable."[29] Citing the rapid departmental expansion of the 1920's, the Commission complains of the large burden of public debt, increasing pensions and the cost of swollen departments at a time of revenue ebb. The Report cites the reduction of these establishments as a necessity.

The Commission proceeds by noting that $11.8 million must be earmarked for pensions and debt charges--charges which are not susceptible of arbitrary reduction. This leaves $31.9 million of revenue. Thus the administrative costs which for 1932 were estimated at $43.5 million had to be cut below $31.9 million--a reduction of about 27%--before the finances could be established on a balance of revenue and expenditure.

While the proposed cutbacks will be discussed below, it might be interesting at this point to comment on what sort of attitude was informing British colonial policy in the early 1930's and inquire as to whether in fact the British administrators in Malaya could have done no

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[29] Ibid., p. 16.

other than they did. Certainly in the circumstances of 1932, it would appear reasonable to expect revenue to fall, or at least remain constant in subsequent years. And given the "pre-war principle," expressed by the Labour Adviser to the Colonial Office, " . . .that a colony should only spend on such things" as "it could afford from its own financial means," reduced spending would seem inevitable. [30] Thus the British in Malaya were taking a rather more thorough-going laissez-faire view than, say, Holland was in the N.E.I. In the N.E.I., Dutch policies included governmental measures to control the prices of key goods (rice, maize, soy beans, etc.), legislative regulation of imports and the rather draconian power (vested in a committee appointed by the Governor General) to confiscate . . . certain important necessities . . .and cause them to be sold for the owner's account and delivered where needed." [31] It would appear then that the colonial administrators in Malaya were reluctant in comparison to some colonial powers to intervene governmentally as a way of mitigating the effects of the Depression. The governmental actions taken to alleviate hardship were largely centered on the attempt to grow more food. [32]

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[30] Major General Orde-Browne, Labour Conditions in Ceylon, Mauritius and Malaya (London: H.M.S.O., 1943). The statement was made after a visit in the early 1940's.

[31] Professor Dr. A. Neijtzell deWilde, The Netherlands Indies During the Depression (Amsterdam: J.M. Meulenhoff, Institute of Pacific Relations, 6th Conference, Data Papers, Vol. 8, 1936), see page 15 on price changes between 1929 and 1935.

[32] It should be pointed out that in some areas of the economy, e.g. rubber, governmental involvement was very considerable. It is also worth noting that Malaya tried to discourage imports in some cases. For example, the early 1930's saw a brief experiment with an import tax on rice as part of the effort to encourage domestic rice production. The unpopular tax was subsequently repealed. More will be said on this in Chapter IX.

For the purpose of prescribing reductions, the Report classified departments in accordance with the nature of the services they discharged. The Report goes on to state that in 1922, the revenue and expenditure balanced at about $38 million. " . . .having regard to the increase in debt and pension charges, the finances for that year furnish a useful guide in considering a future budget which is to balance at about $43 million."[33] The table on pages 238 - 240 shows the actual expenditure of the various departments in 1922, the estimated expenditure for 1932 and the Commission's recommendations.

Having considered in some detail the governmental program that was proposed for the 1930's, let us turn to the question of what actually occurred. The preceding discussion and the tables on pages 238 - 240 would seem to suggest that the 1930's would be a period of declining revenues and thus cutbacks would be necessitated in wide areas of governmental activity. Regrettably, there was no follow up commission to comment on what specific cutbacks were made. Intercensal data for the post-1932 period might also be helpful in showing employment changes and, by inference, where cutbacks were made, but such intercensal data are not available. Furthermore, the 1947 Census Report is distorted by many factors. Perhaps the primary distortion would be that caused by the Japanese occupation with its disruption of normal economic activities. Also, the 1947 Census Report is for the new Federation of Malaya and thus in the Reports own words the data are "not fairly comparable." [34] Thus, though the data are not as

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[33] F.M.S. Retrenchment Commission Report, op. cit., p. 19.

[34] In Chapter IX, the data will be rearranged in an effort to make them comparable.

SCHEDULE OF RECURRENT EXPENDITURE.[35]
(Figures in thousand $.)

Heading of expenditure	Expenditure		
	Actual, 1922	Estimated, 1932	Commission's recommendations.
Classified			
Class A--			
High Commissioner	46	11	10
Audit	21	113	75
Chief Secretary to Government	56	85	70
Residents	61	97	80
Chinese Secretariat	102	152	140
Commissioner of Lands	2	3	--
District and Land Offices	721	1,068	800
Labour Department	85	189	110
Legal Adviser	6	4	5
Marine	183	181	145
Mines	409	405	300
Public Trustee, Official Assignee, Registrar of Companies and Estate Duty Office	3	13	30
Register of Titles	2	5	5
Trade and Customs	609	1,711	1,400 (a)
Treasury			
Widows and Orphans and Public Officers Guarantee Fund	25	65	60
Total Class A	2,331	4,102	3,230
Class B--			
Supreme Court and Courts	164	219	220
Total Class B	164	219	220
Class C--			
Military	823	1,221	1,000
Police	2,908	3,472	2,750
Prisons	478	549	520
Total Class C	4,209	5,242	4,270
Class D--			
Agriculture	619	851	660
Co-operative Societies	---	140	90
Education	1,279	3,576	2,000
Fisheries	25	17	10
Forests	540	860	640
Geological Survey	38	60	40
Government Gardens and Plantations	57	80	20
Medical and Health	2,816	5,338	3,750

(cont.)

(a) For the distribution between the Customs, Chandu and Toddy Branches, see paragraph 119.

SCHEDULE OF RECURRENT EXPENDITURE--(cont.)
(Figures in thousand $.)

Heading of expenditure	Expenditure		
	Actual, 1922	Estimated, 1932	Commission's recommendations.
Classified			
Class D-- (cont.)			
Surveys	1,148	1,502	975
Town Planning	25	79	15
Veterinary	---	159	120
Total Class D	6,547	12,662	8,320
Class E--			
Drainage and Irrigation	---	725	
Public Works Department	1,615(a)	2,042	5,200
Public Works, Annually Recurrent	3,800(a)	4,008	
Total Class E	5,415	6,775	5,200
Class F--			
Electrical Department	---	1,427	1,250
Posts and Telegraphs	1,495	2,700	2,000
Sanitary Boards	1,752	3,246	2,250
Total Class F	3,247	7,373	5,500
Class G--			
Bands	17	12	--
Game Preservation	--	52	10
Museums	61	51	35
Printing	210	349	250
	288	464	295
Unclassified			
Malayan Civil Service and Malay Administrative Service	1,278	1,551	1,100
Malay Officers	91	136	
General Clerical Service	1,449	2,120	1,250
Passages	411	663	400
Miscellaneous	627	1,072	800
Temporary Allowances	2,797	---	---
Exchange	---	100	---
Rulers and Chiefs	816	1,096	1,100
TOTAL RECURRENT EXPENDITURE EXCLUSIVE OF DEBT AND PENSION CHARGES (cont.)	29,670	43,575	31,685

(a) Included Drainage and Irrigation and Electrical expenditure.

SCHEDULE OF RECURRENT EXPENDITURE-- (cont.)
(Figures in thousand $.)

Heading of expenditure	Expenditure		
	Actual, 1922	Estimated, 1932	Commissions's recommendations.
Charges on Account of Public Debt	4,908	5,761	6,000
Pensions, Retired Allowances, Gratuities, etc. (b)	1,588	4,341	5,800
TOTAL RECURRENT EXPENDITURE	36,166	53,677	43,485

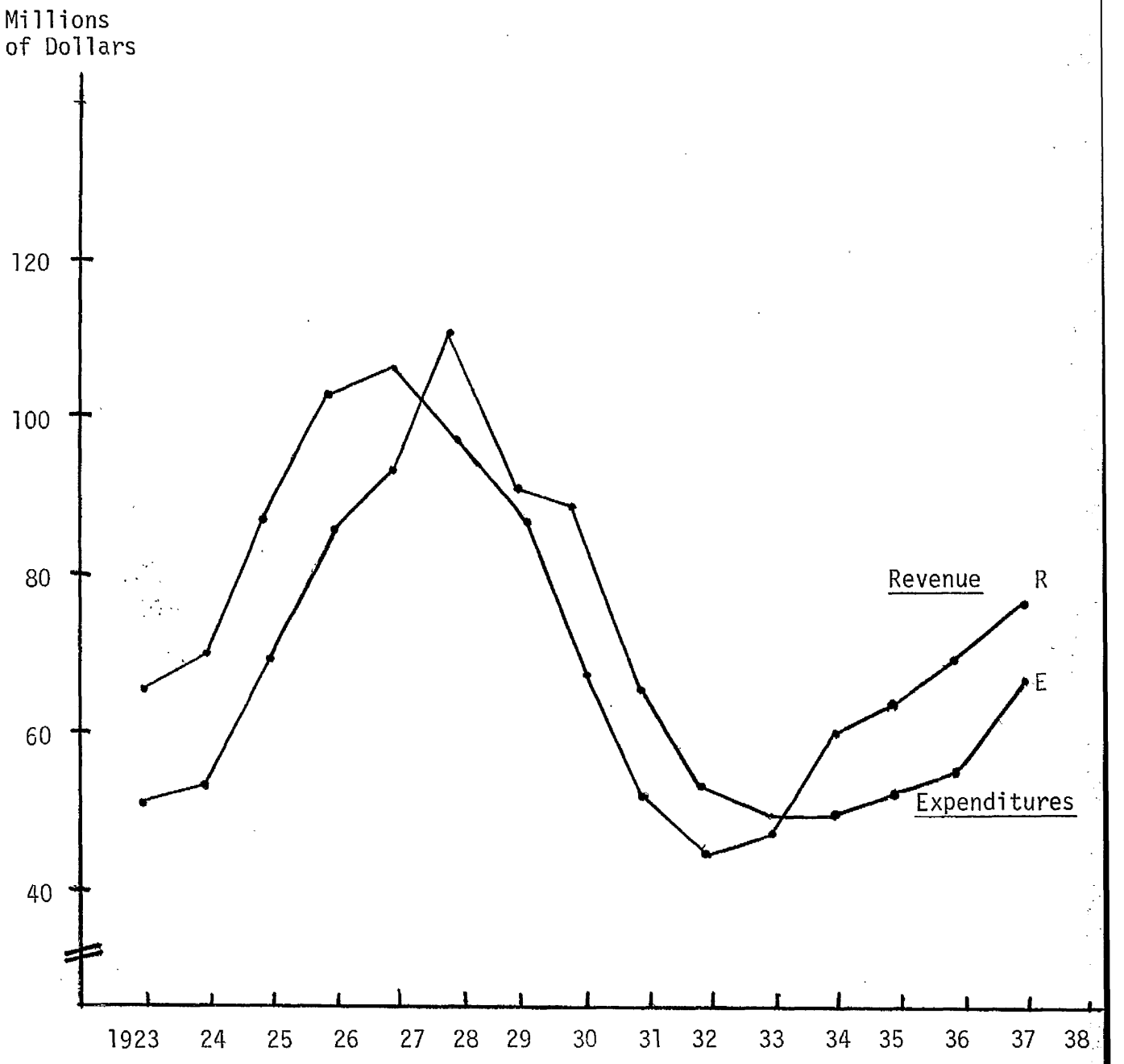
(b) Includes Political Pensions and Compassionate Allowances.

35 F.M.S. Retrenchment Commission Report, op. cit., Appendix, pp. 82-83.

complete as one might wish, there are available sufficient sources, such as the annual reports of the Colonial Office, to make possible an analysis of the extent to which retrenchment occurred. There are, of course, important implications in this for welfare--a topic on which extensive comment will be made subsequently.

The main charge of the Retrenchment Commission it will be recalled was to adjust expenditures to revenues for the 1930's. The anticipation was that both would be reduced--or at least would not grow. In fact, revenues were not reduced. The main sources of revenue held up well during the 1933-37 period. The actual F.M.S. Government revenue was $43,817,151 in 1932--the trough of the Depression. Following that year, and after a five year decline in revenue, revenue began to increase and continued to rise through 1937. The following graph (on page 242) shows the trend of revenue and expenditures for the F.M.S. from 1923 through 1937.

REVENUE, EXPENDITURES FOR F.M.S., 1923-37



Source: Adapted from data on p. 116 of the Colonial Office Report, 1938.

The increases in revenue for the years 1932-37 were largely attributable to increasing export duties on tin and rubber throughout those years and rising land revenues with the exception of one year. These data are presented below.

F.M.S. Revenue [36]

Year	Revenue	Export Duties on Tin	Export Duties on Rubber	Land Revenue and Land Sales
1932	$43,817,151	$ 3,594,022	$ 376,380	$4,268,125
1933	47,198,806	4,886,683	577,406	3,989,363
1934	58,926,323	8,886,234	2,160,157	5,141,756
1935	62,364,264	9,700,616	2,247,497	5,593,334
1936	68,090,902	13,410,254	2,817,180	5,804,247
1937	80,864,589	19,487,585	4,763,184	6,073,314

Thus while the Retrenchment Commission had estimated that revenues would average $43.7 million per annum for the 1933-37 period, they actually averaged approximately $63.5 million. In consequence of this fact it was not necessary for expenditures to be reduced as envisioned by the 1932 Commission on Retrenchment. In 1932 the actual expenditure was $53,740,139. Though the government thus incurred a deficit of approximately $10 million in 1932, the size of the deficit would decrease to approximately $3 million in 1933 and fron 1934 to 1937, the government actually enjoyed a surplus of revenues over expenditures. [37]

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[36] Colonial Office Report, 1938, op. cit., p. 116. Throughout the 1930's period, imports also rose (with the exception of 1933) as did railway receipts (again, with the exception of 1933). The revenue figures presented here are exclusive of railway receipts.

[37] Details of how "the public debt"--consisting of a Straits Settlements Sterling Loan and an F.M.S. Local Loan--was financed are provided in the F.M.S. Colonial Office Report, 1933, pp. 80 and 81 and appendices B and C, pp. 104-5.

The following table provides data on revenues and expenditures of the F.M.S. between 1932 and 1937.

F.M.S. REVENUE AND EXPENDITURE[38]

Year	Revenue	Expenditure
1932	$43,817,151	$53,740,139
1933	47,198,806	50,258,671
1934	58,926,323	47,211,228
1935	62,364,264	51,119,943
1936	68,090,902	52,702,228
1937	80,864,589	71,143,470

The budgetary surplus of the latter years may well have contributed to the deflationary pressures of the 1930's.

With the exception of a few years in a few states, the trend of rising expenditures described here was general throughout Malaya.[39] Yet even though expenditures generally rose from 1933 on, they still were not as high in the late 1930's as they had been in the late 1920's.[40] Thus it may be inferred that fewer people were employed by the government in the mid- and late 1930's than were in the mid- and late 1920's. Again, regrettably, reliable intercensal data is not available to confirm this.[41] The available figures on spending for public works--an area looked to as a means of alleviating unemployment--however, suggest a continual high level

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[38] Colonial Office Report, 1938, op. cit., p. 116. As revenues are exclusive of railway revenues, expenditures are also exclusive of railway expenditure as presented in the Colonial Office Reports.

[39] This statement is based on perusal of the Annual Reports for the various states.

[40] In corroboration of this point, see inter alia the figures on expenditures in the 1932 Annual Report (which also provides data from the 1920's) for Selangor, Appendix A, Part vi and in the 1937 Annual Report, Appendix A, part v.

[41] Chapter X will say much more about employment and welfare.

of expenditure, and by inference, a high level of employment. Below data are presented for selected states of the F.M.S. and U.M.S. to show the trend of expenditure on this important item. [42]

EXPENDITURE ON PUBLIC WORKS [43]

States	1932	1933	1934	1935	1936	1937
Perak	$1,843,013	$1,275,517	$1,227,461	$2,136,144	$2,277,564	$2,870,095
Pahang	1,201,769	702,045	658,654	767,622	901,620	1,273,816
Kedah	1,133,000	777,725	831,565	1,006,250	1,301,044	1,853,669
Perlis	74,602	61,175	96,623	112,702	133,622	153,119
Selangor	1,970,183	1,597,305	1,373,680	1,690,606	1,877,844	3,368,865

Disaggregating public works expenditure further, it appears that "savings" were made by allowing buildings to fall into disrepair while expenditures were generally increased for irrigation projects in Malaya. The 1933 Annual Report for the F.M.S. reports that "there is little to report in the way of new buildings, new roads and road improvements or general increase in amenities. Work has been confined for the most part to maintaining existing works and endeavouring 'to do without' where necessary, even to the extent of reducing standards of upkeep." [44] The same report then goes on for several pages describing the drainage and irrigation works

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[42] Ideally one would like to have data reflecting the trend of spending on the items enumerated in the Retrenchment Commission Report for the years 1932-37. The data are not presented in this way. There is in fact considerable variation in the presentation of the data in the Annual Reports and in many cases, the desired figures are not reported. All of this makes comparisons difficult.

[43] Colonial Office Reports, op. cit.

[44] Colonial Office Report, 1933, op. cit., p. 67.

in progress. By the mid 1930's, it is reported that "building maintenance, especially painting, has been getting steadily in arrears during the past few years . . ." [45] It is also interesting to note that a large part of public works expenditures was "annually recurrent" rather than in the categories of "other charges and special expenditures" or "special services."[46] This indeed suggests that employment may have held up well.

There is also some evidence that expenditure on road maintenance was used to augment employment. As Malaya approached the trough of the Depression, expenditure on road maintenance fell--from $2,960,968 in 1931 to $1,654,753 in 1932 to $1,467,750 in 1933.[47] It is reported in the Annual Report that "during the year (1933) attempts were made to employ Malays on road work, and although the initial efforts were not altogether satisfactory it is hoped that by replacing unsatisfactory workers with others of the same nationality the experiment should prove successful, and in the course of time be beneficial to all concerned." [48] From 1933 until the late thirties expenditure on road maintenance rose. The expenditure on maintenance for 1934 was $1,501,733. This rose to $2,004,510 for 1935, $2,171,685 for 1936 and $2,447,710 for 1937--though the Annual Reports are indeed reticent regarding the number of people given work on road maintenance for those years. The 1938 Annual Report states that $2,822,282 was spent on road maintenance. Speaking of unemployment of miners

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[45] Colonial Office Report, 1935, op. cit., p. 87.

[46] See for example, Colonial Office Report, 1934, op. cit., in substantiation of this point.

[47] Figures are from the Colonial Office Report, 1933, op. cit., p. 64. These expenditure figures are for metalled and gravelled roads. Expenditure on unmetalled roads and bridle-paths was very small compared to the former.

[48] Ibid.

which has become "acute," the Report states that " . . .the various State Governments provided funds to initiate a programme of relief works. In this way 11,685 coolies were absorbed and a total of $692,188 was spent on such works which principally took the form of earthwork for widening and improving the alignment where necessary of the roads." [49]

There was a limited amount of new road construction during the Depression. Such construction was largely confined to the underdeveloped states of the East as discussed in an earlier chapter. [50]

As earlier mentioned, irrigation was an area in which spending was continued at a sustained level. Though such spending was probably not very important in terms of employment creation, it can be said to contribute to welfare in that such projects certainly contributed to the higher rice yields of the 1930's. Data are presented below on drainage and irrigation expenditure for representative states for the period 1932-37.

EXPENDITURE ON DRAINAGE AND IRRIGATION [51]

	1932	1933	1934	1935	1936	1937
Perak	$249,226	$197,655	$388,085	$683,114	$577,976	$576,469
Pahang	16,793	18,157	21,952	77,130	96,565	100,842
Selangor	87,769	72,826	198,035	229,247	220,060	291,053

Irrigation was viewed as one of the cornerstones of agricultural policy after the 1929 Reorganization of the Department of Agriculture and it will be discussed fully in the next chapter.

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[49] Colonial Office Report, 1938, op. cit., p. 68.

[50] Chapter V. Also see the maps in that chapter.

[51] Colonial Office Reports.

Though this further disaggregation sheds some additional light on the events of the 1930's, it still does not make possible conclusive statements on employment and welfare changes in the 1930's. Further discussion of this is deferred until Chapter X.

One further factor in evaluating this period is worthy of mention. It has earlier been pointed out that the government in Malaya eschewed an active governmental role as a way of fighting the Depression. The government also entertained and rejected the idea of introducing an income tax in 1932. Theoretically equitable, it would also have made possible the taxation of foreign companies as earlier noted. Imposition of an income tax might have made possible a more active governmental role. At the same time, it might be convincingly argued that a more inopportune time for the imposition of the tax could hardly be found considering the state of the world economy and anticipated demand for Malaya's export products. The prospects for the companies that would pay the new tax were not good in 1932--though in fact the companies would fare reasonably well under regulation schemes in the 1930's. It is hard to say with certainty what the welfare implication of an income tax and concomitant greater government spending to mitigate the Depression might have been.

Given the various aspects of retrenchment and welfare discussed in this section, it appears that two major conclusions emerge. First, the governmental retrenchment of the 1930's was much less severe than originally thought to be necessary. Second, it is difficult to make a definitive statement on welfare based on the data adduced here. Thus a later chapter (X) will devise other measures of welfare and attempt rather more extended comment on this matter for the 1930's.

Chapter IX

Involution

The purpose of this section is to describe in detail the involutional adaptation necessitated by the exigencies of the Depression and sharp governmental retrenchment. Basically this adaptation took the form of a return to subsistence agriculture with a serious and sustained effort to increase the output of both rice and other food crops such as fruit, vegetables, livestock and poultry. This adaptation, which had the effect of further rigidifying the dualistic stereotype, was actively promoted by governmental policies. The cornerstones of government policy were irrigation and land policy both of which will be described in subsequent pages. Also important were the 1929 reorganization of the Departmant of Agriculture with the appointment of Dr. H.A. Tempany as head of the Department and the 1932 creation of the Department of Irrigation and Drainage. A further important factor was the growing imminence of war which prompted the government in the mid- and late thirties to step up its efforts to increase food production. These efforts will be described up to the 1939 declaration of war by Britain.

In spite of these policies, the goal of self-sufficiency in rice was not achieved. Rice output never rose above 40% of the country's requirements.[1] Chapter XI will examine the complex social and economic problems of the 1920-40 period that retarded the progress of the effort to reach self-sufficiency in food.

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[1] In Chapter X it will be suggested that per capita rice availability probably did not fall during the Depression. This fact and the fact that large per annum increases in rice production were registered after 1929 is probably at least as significant as the fact that rice production never rose above 40% of requirements.

This discussion of agricultural policy can begin by noting that the goal of self-sufficiency in rice was an oft-stated goal in Malaya since at least the late 19th Centruy. In 1897, Sir Frank Swettenham in his report as Resident General called for a "vastly increased area under a well devised system of irrigation, yielding a rice crop sufficient not only for the people of the Malay States, but also for the large native population of the neighbouring colony" (the Straits Settlements).[2] In fact, in the approximately forty year period between the late 19th Century and the Depression, Government policies to increase rice output were very limited with rice losing out to the more highly remunerative and highly organized tin and rubber sectors. During the period between the late 19th Century and the Depression two views vied for acceptance:

> "One school of thought holds that prosperity depends on the cultivation and production of export staples and that while reasonable help and encouragement should be forthcoming for rice cultivation, the crop is of comparatively small importance to the country inasmuch as with a satisfactory market price for export staples it has always been possible to purchase supplies of rice from foreign countries on more favorable terms than they can be produced in Malaya. The second view is that the domestic food supply is of vital importance and that dependence on imported supplies of rice is a source of danger inasmuch as, in the event of an acute fall in the price of export staples or a shortage in the available export excedent of rice in foreign countries or both, a grave crisis might quickly arise."[3]

It can be said that in the period before the 1929 reorganization of the Agricultural Department, the Malayan Government subscribed to the former view-- that is rice was regarded as being of comparatively

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[2]Ding Eing Tan Soo Hai, The Rice Industry in Malaya 1920-1940 (Singapore: Malaya Publishing House, Ltd., 1963), p. 21.

[3]Report of the Rice Cultivation Committee F.M.S., (Kuala Lumpur: Government Press, 1931) Vol. I & II, p. 14.

small importance. A recounting of events in the agricultural sector up to 1929 will elucidate that point.

At about the same time that the Department of Agriculture was established, 1905, rubber cultivation was being introduced on the Malay Peninsula. As little information was available regarding the cultural requirements of the rubber tree, the extraction of latex, its coagulation and conversion to a marketable product, or on the pests and diseases of the tree and their control, the Department devoted its main attention to the rapidly growing industry.[4] Important questions of land alienation, labour supply and control, communications and water supply assumed great immediacy with the extremely rapid growth of the rubber industry in the early part of the century. Rice and other crops were relegated to a position of less importance-- though limited efforts were made in regard to several crops.[5] By World War I, the difficulty in maintaining a balance between the claims of the rubber industry and other crops was becoming acute. The difficulty was further accentuated by the War which caused depletion of the administrative and scientific people available to deal with agricultural problems.

In the post World War I period, Malaya was becoming more fully aware of how dependent she was on imported food. This awareness manifested itself in the establishment of a Government Rice Mill in Krian,

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[4]The work done by the Department of Agriculture was supplemented by a staff of scientific officers engaged by the Rubber Growers' Association.

[5]These include studies on the introduction of potential new crops, the cultivation of coconuts and control of coconut pests, entomological and mycological investigations on crops other than rubber as well as control of the insect pests of the padi crop. Also work was initiated on rice breeding which involved study of varieties, yields and methods of cultivation.

the extension of breeding investigation following the establishment of a Rice Experiment Station in the Krian District as well as improvement of the irrigation system. Irrigation had in fact been becoming more important in agricultural policy since the establishment of the Krian irrigation scheme in 1906 as evidenced by the 1913 establishment of an Irrigation Branch of the Public Works Department of the Federated Malay States and the 1921 hiring of an eminent expert on irrigation, Mr. E.C. Dupuis, to aid in extension of the system. Still, as Cheng Siok Hwa notes, the Krian scheme was "the only large scale undertaking of its kind until the 1930's." During the 1930's, that is after the Tempany Reorganization and "when interest in food production became more pronounced," irrigation would become a cornerstone of the government's relatively successful new padi policy.[6]

The 1917-21 period, during which there were rice crop failures in India and Siam, pointed up Malaya's vulnerability in having assigned rubber a position of primacy in agriculture to the neglect of rice. The 1918 failure of the Indian rice crop had compelled the Indian Government to reduce the normal allowance of export from Burma to Malaya by 42%. As Indian exports to other countries also had to be reduced, Malaya found herself competing with other importers of rice for Siam's and Indo-China's crops. When the 1920 drought in Siam forced her to prohibit the export of rice for the entire year, famine seemed imminent in Malaya. The situation had to be met by government control of rice and the supplementation of imported food with locally grown products--a portent of things to come in the 1930's. Compulsory measures ensuring the planting of food crops by all employers of labour were instituted.[7] The Malayan Governments lost $42,000,000 in coping with the crisis "while further

[6]Sometimes the progess made in rice cultivation was impressive indeed. In Cheng Siok Hwa, "The Rice Industry in Malaya," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. XLII, part 2, 1969 p. 136 it is reported that the Krian scheme when completed in 1906 could irrigate 70,000 acres. "It brought into cultivation 10,000 acres which had previously been impossible to cultivate." See Cheng's historical survey for further details on increased (Continued on p. 252.)

unascertained losses to employers of labour must have been considerable." [8] Malaya's food situation is seen as even more serious when it's realized that for many years large tracts of land formerly in rice cultivation had been abandoned by the Malays. [9]

The 1920's saw continuing efforts to increase rice output. In 1921, the Government established the Co-operative Department in an effort to relieve rural indebtedness.[10] In 1926, all research and advisory work on rubber was handed over to the Rubber Research Institute of Malaya leaving the Department of Agriculture free to concentrate on the research side of problems connected with crops other than rubber.

The 1920's saw gains in Malaya's output of rice. In the 1921-22 season, total acreage had been 644,234 with production of milled rice at 211,302 tons. In the 1930-31 season, the respective figures were 707,740 acres and 264,202tons. [11] These gains were not sufficient to provide for the needs of Malaya's rapidly growing population; between 1921 and 1931, Malaya's population rose from 2,907,000 to 3,788,000. [12]

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[6](Continued from previous page) acreage and yield. Also of interest on the history and practice of rice cultivation in Malaya is James C. Jackson, "Rice Cultivation in West Malaysia," Journal of the Malayan Branch of the Royal Asiatic Society, Vol. XLV, part II, 1972.

[7]D.H. Grist, An Outline of Malayan Agriculture (London: Crown Agents of the Colonies, 1950) p. 32.

[8]Report of the Rice Cultivation Committee, op. cit., p. 14.

[9]Tan, op. cit., p. 17 citing Proceedings, F.M.S., 1921, pp. C103; C147; 160-164.

[10]Grist, op. cit., see Chapter V for more detail on the Co-op Department.

[11]Malayan Agricultural Statistics (Kuala Lumpur: Registrar General of Statistics, S.S. and F.M.S., 1940).

[12]Lim Chong-Yah, Economic Development of Modern Malaya (Kuala Lumpur: Oxford University Press, 1967) p. 344.

The memory of the 1917-21 food crisis and the concern to further increase rice production finally resulted in the Reorganization of the Agriculture Department and the appointment of Dr. H.A. Tempany as Director.[13] The Reorganization of the Department of Agriculture and Tempany's appointment were portentous events in Malayan agriculture to be followed soon by the 1931 convening of the Rice Cultivation Committee. The Committee declared it "imperative that steps . . . be taken on more vigorous lines for the extension of the rice industry. We feel that any increases of production . . . would be an additional insurance against the threat of shortage owing to failure of outside supplies and an alleviation of wants owing to the depreciation of markets for export staples." The earlier expressed view that the domestic food supply was of vital importance was clearly on the ascendency. The Committee instructions were to find "the best steps to be taken in order to encourage rice cultivation in Malaya."[14] In this effort, irrigation and land policy were to assume paramount importance.

The Rice Cultivation Committee Report was forceful in stating what had to be done in irrigation to help increase rice output. Rather than viewing questions of irrigation from the standpoint of particular localities, the Report advised that they be viewed from a Malayan standpoint" . . . the influence of conditions in one area on those in another must be allowed for, and a coherent policy of development applicable to

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[13] Grist, op. cit., p. 34. See for details of the reorganization.

[14] Report of the Rice Cultivation Committee, op. cit., the quotes are from pages 44 and 13 respectively.

the country as a whole must, if possible, be developed."[15] Furthermore, the Report notes " . . . it is only in those areas where efficient water control systems exist that the crop can be regarded as certainly profitable under average conditions."[16] The Report describes the ideal system of water control as a system of irrigation combined with controlled drainage underscoring Dr. Tempany's view that means for getting water off the land are quite as important as the means for getting it on. The Report also clearly favors large-scale irrigation schemes such as the one at Krian.

> "In the aggregate a very large sum of money must have been expended in the Federated Malay States on small irrigation schemes and it is extremely improbable that the return therefrom had been anything like commensurate with the expenditure involved. The Krian scheme, on the other hand, has yielded very satisfactory results and it certainly seems open to question whether a good deal more would not have been accomplished if the money which has been expended on small schemes had been devoted to opening up large areas on the lines of Krian."[17]

These larger works, the Report says, must be undertaken through the agency of the Government Department and the question is as to the best type of organization to adopt for the purpose. The Public Works Department is faulted for ineffective action in the past owing to its small staff, the attention it has had to give to other matters and high incidence of leavetaking . The Report comes to the conclusion that "the

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[15] Ibid., p. 16.

[16] Ibid., p. 24. Also see the speech by Dr. H.A. Tempany which is reported in The Straits Times, December 23, 1930, p. 16. Tempany describes water control as "the beginning and the end of successful rice culture... Water supply should be absolutely under control: it must be possible to get the water on and off the land when it is wanted."

[17] Report of the Rice Cultivation Committee, op. cit., p. 25.

only satisfactory solution lies in the establishment of an independent Drainage and Irrigation Department which will be executive in the Federated Malay States and the Straits Settlements and advisory in the Unfederated Malay States. "We consider that the nucleus for this will probably be found in the existing Hydraulic Branch of the Public Works Department of the Federated Malay States."[18]

The recommendation of the establishment of the Drainage and Irrigation Department was favorably acted upon while, somewhat contradictively at the same time other agricultural staff was being reduced, some agricultural research and extension programs were being slowed down or abandoned and work at some experimental stations was being suspended. The newly established Drainage and Irrigation Department set about restoring padi lands that had been abandoned because of silting.[19] It initiated new projects designed to prevent further silting and flooding. It also initiated large padi resettlement schemes.[20] The Rice Cultivation Committee Report devotes many pages to a detailed survey of the need for water control in the various areas of the country. Special appendices deal with three important blocks of land where large scale developments are possible: the Tanjong Karang area in Kuala Selangor, the Sitiawan area on the borders of Perak and the Dindings, the Sungei Manik area in Lower Perak. The Report also notes the recurring competition between

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[18] Ibid., p. 26.

[19] Article in The Straits Times, May 20, 1930, p. 13. "One difficulty of irrigation schemes in Malaya is the fact that rivers which are heavily fouled by mining silt cannot be used. Fresh water is essential. Even in the unspoilt rivers there is a considerable amount of silt, and this would have to be coped with by the construction of sluice gates in barrages."

[20] Tan, op. cit., p. 27. See for more detail.

rice and other crops and includes the strong admonition that success in the water control effort will depend on a policy of development which will prohibit the alienation of reclaimed lands for other forms of cultivation.[21]

By the late 1930's, the activities of the Department which had originally been confined to the Federated Malay States and the Straits Settlements were spreading into the Unfederated Malay States. The projects undertaken by the Department were having the intended effect. Increases in rice and other agricultural products were registered throughout the country in the 1930's. Figures detailing these increases will be provided later after consideration of the second important aspect of post-1929 policy-- land policy.

We can conveniently begin our discussion of land policy by noting that its importance in over-all agricultural policy dates back to at least mid- or late Nineteenth Century.[22] Beginning in 1875 J.W.W. Birch, Perak's first Resident, allowed permits to clear and cultivate land free of rent. In 1882, under Land Commissioner William Maxwell's prodding, the general system of alienation and registration was based on the Torrens System which had the advantage of clearly indicating land

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[21] Report of the Rice Cultivation Committee, op. cit., p. 33.

[22] The discussion of land policy which follows is concerned with proprietary rights which evolved only with the advent of permanent agriculture and stable monarchical government. The original Malay customary law recognized only usufructuary rights which were held as long as the land was occupied and payment, fixed by Malay custom at one-tenth of the crop, was given to the Raja. The land laws of the Federated Malay States all embody to some degree the notion that ownership depends on cultivation. See T.B. Wilson, "Some Economic Aspects of Padi-Land Ownership in Krian," The Malayan Agricultural Journal (Kuala Lumpur: Department of Agriculture, Federation of Malaya), Vol. 37, No. 3, 1954, for further discussion of these points.

transactions in one original document rather than a multiplicity of deeds.[23] The overriding concern in this early period was for the establishment of a permanent land revenue system basic to which was agriculture. This was manifest in the Land Laws of 1875 and in 1877 Rules for the Disposal of Lands in Selangor which provided for long leases.[24] In the late 19th Century, Sir Frank Swettenham continued the "effort begun by Hugh Low and Maxwell in Perak to bring about an agricultural basis in order that the Malay States' somewhat precarious dependence on revenue from the Chinese tin miners might be reduced . . ."[25] With the extension to other states of the special terms encouraging agriculture (1888), the suspension of quit rent requirements (1891, Perak) and the extension of Residents' power to grant land, the Government persisted in its central concern of ensuring the permanence of Malay agricultural occupiers.[26] It was in this period that the concept of Malay reservations had its roots.

Government concern over agriculture in general and land policy in particular continued into the 20th Century. Several legislative measures are of particular interest to this study. The Malay Reservations Enactment of 1913 formally codified the notion that had been developing over many years. The Enactment established that "no state land included within a Malay Reservation shall be sold, leased or otherwise disposed

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[23]Philip Loh Fook Seng, The Malay States 1877-1895 (London: Oxford University Press, 1969), pp. 109-110.

[24]Ibid., pp. 114-115.

[25]Ibid., p. 118.

[26]Ibid., see pp. 130, 127 and 128 respectively.

of to any person not being a Malay."[27] The Federated Malay States Enactment of 1917 imposed conditions on the occupation of padi lands and required that such lands not be used for any cultivation other than that of rice.[28] The Land Code of 1926, the most important law governing land tenure in the 1930's, held that in the absence of any express condition to the contrary, there shall "be implied in such document of title . . . for any country land not exceeding ten acres the condition that the land be continuously cultivated in a proper manner according to the methods of good husbandry to the extent of one-half of the total area thereof, and that if for three consecutive years such one-half shall not have been so cultivated the proprietor shall be taken and deemed to have made default in the observance of such condition."[29] Closer examination of the aforementioned measures actual operation in Malaya, as well as the closely similar legislation of the Unfederated Malay States and the Straits Settlements will establish land policy as an important part of a positive, sustained and fairly uniform effort to increase rice production. Though the 1926 Land Code divides land into five categories, town land, village land, country land exceeding 10 acres in area, country land not exceeding 10 acres in area, foreshore and sea bed, the following discussion will be concerned only with country land.

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[27]Tan, op. cit., p. 48 citing the Laws of the Federated Malay States. Similar legislation was passed in Kelantan in 1930, in Kedah in 1931, in Perlis in 1935, in Johore in 1936 and in Trengganu in 1941.

[28]Report of the Rice Cultivation Committee, op. cit., p. 21. See the Report's criticisms regarding the operation of the Enactment.

[29]Grist, op. cit., p. 17.

The approval of applications for country land over 10 acres in area, the premium to be paid and the conditions imposed on the title were matters left to the discretion of the Resident of the State. Premia were not fixed; each case was considered individually. Title to the land was either grant or lease of State Land and quit rent was $1 per acre for the first six years and $4 per acre thereafter. To encourage production of food crops, an annual quit rent rebate was allowed on land that could be shown to the satisfaction of the Resident to have been brought under cultivation with padi, coconuts or other approved agricultural products. This rebate was intended to encourage rice output; it reduced the effective rent to $1 per acre if the crop were padi and $2 per acre if the crop were any other approved agricultural product. Under the 1926 Land Code, cultivation of the land had to begin within twelve months of the date of registration of the grant or lease. The land had to be cultivated to the extent of one-quarter of the total area thereof at the expiry of five years from the date of registration and to the extent of one-half after 10 years. If three years elapsed in which one-half of the land was not cultivated according to the methods of good husbandry, the land was forefeited.[30]

As Grist states it, "Country land not exceeding 10 acres in area is a division made in the interests of Malay and other smallholders," with the title to the land being a grant, a lease of State Land or an entry in the Mukim Register. Premia were usually fixed by the collector, such authority being delegated to him by the Resident, with the same considerations as to premia and survey fees, etc. as applied to land exceeding 10 acres in area. For the purpose of fixing rent, land was

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[30] Ibid., p. 18.

divided into first and second class land in Perak, Selangor and Negri Sembilan and into first, second and third class land in Pahang.[31]

As earlier mentioned both the 1917 Federated Malay States Enactment and the 1926 Land Code obliged landholders to cultivate country lands. The Rice Cultivation Committee believed that these measures were not strong enough. The Report singled out for special criticism the F.M.S. Enactment of 1917. In actual operation, the terms of the Enactment requiring that padi land shall not be used for any cultivation other than that of rice, were satisfied by the cultivation of rice on one-quarter of the area leaving three-quarters of the area on which rice cultivation could not be enforced. The Report strongly recommends that rice cultivation be required on three-quarters of the area leaving only one-quarter to cultivate kampong or other products or to build a house.[32]

Legislation in the Unfederated Malay States followed that of the Federated Malay States and seemed to be motivated by the same policy objective, the increase of food production. We now turn to a perusal of that legislation.

In Kedah a Land Enactment and Rules embodying principles and procedure similar in all important respects to the F.M.S. Land Code came into effect in 1932. In general the President of the State Council had authority to impose conditions enforcing or prohibiting the cultivation of any specified product. Premia and rent varied according to the nature of the land, cultivation and conditions of tenure. Favourable rates were conceded to land in Malay Reservations, alienation of such

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[31] Ibid., p. 16.

[32] Report of the Rice Cultivation Committee, op. cit., p. 21.

land being restricted to Malays or locally domicilied Siamese. Under the law, premia varied from $1 per relong (0.71 acre) for padi land to a rate of $50 per relong or more for land alienated for rubber cultivation. Rent varied from 30 cents for padi land to $2.50 for rubber.

In Kelantan, the system of land tenure was one of the title by registration given by permission of the Sultan. For small holdings, title was by entry in a register. Possession of title was in perpetuity subject to the payment of the annual quit rent and the observance of stipulated cultivation conditions or any other special conditions stipulated in the title. Premium on rice land was $5 to $15 per acre, "almost invariably the minimum" says Grist.[33] On Kampong land, the premium ranged from $10 to $15 per acre. On rubber land, the premium was from $15 to $25 per acre. Rents were .40 to $1 per acre on rice land, .80 to $1.60 per acre on kampong land and $1.20 to $2.40 per acre on rubber land. Restrictions were placed on alienation to non-Kelantanese or on transfer from Kelantanese to non-Kelantanese of alienated land (this had to be approved by the Sultan in Council). The whole of the coastal plain was reserved as a Malay Reservation.

In the state of Trengganu, land administration was in the hands of a Commissioner of Lands and Mines. Legislation regarding both mining and agriculture followed closely that of the Federated Malay States. The areas suitable for padi in this state were considerable and with rubber planting prohibited here, as in the other states after 1934, the opening of new land was confined to areas suitable for padi.

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[33]Grist, op. cit., p. no. ?

Premia for agricultural land varied according to the land's value. Rent on holdings over 10 acres was .50 per acre for the first five years, thereafter $1 per acre. On holdings of less than 10 acres, the rent was $1 per acre. To encourage rice production, rent on land cultivated with wet or dry rice (padi chedongan and padi tugalan respectively) was remitted for the first three years.

Johore's land legislation, passed in 1910 and subsequently amended also follows closely that of the Federated Malay States. Johore is important to the agricultural picture because the proportion of plantable land in the state is probably larger than in any other state of the Peninsula. There was in the 1930's no premium on either rubber or wet rice. Rent per annum on rubber land was $1 per acre for the first six years after which it was $4 per acre. For wet rice, the rent was $.60 per acre.[34] Common to the other states of the Peninsula, the 1930's saw a serious and concentrated effort to increase rice output. In keeping with this goal, the state's policy after 1930 was to alienate no more land for the cultivation of rubber and, as in the other states following the 1934 Rubber Regulation Enactment, no new areas could be planted with rubber. Furthermore, in Johore no large blocks of land were alienated for oil palm, coconuts or tea.

"With reference to the Straits Settlements, in Malacca the Customary Lands Ordinance No. 39 and the Padi Cultivation Ordinance No. 138 make provision for the regulation of padi cultivation on similar lines to that existing in the Federated Malay States."[35]

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[34] Ibid. Also see pp. 19 and 20 for details of premia and rent for oil palm, coconuts and other crops.

[35] Report of the Rice Cultivation Committee, op. cit., p. 21.

Within the framework of established irrigation and land policy, the decade of the '30's witnessed accelerated efforts to increase food output. In this period new important factors emerge. Initially, of course, the concern was to feed the thousands thrown out of work by the Depression. As we approach the late 1930's, however, the government's concern turned more and more to the food shortages that would likely follow the outbreak of war. This prompted the government to take a host of measures.

Government's concern with food production was obvious many years before the outbreak of war and early on manifested itself in many ways. After 1929, the government followed a policy calculated to discourage conversion of agricultural land to mining.

> "Except in special cases no application for mining land or for conversion of agricultural to mining title outside existing mining areas will be considered; and further within such mining areas alienation or conversion will not in general be approved unless it is essential for the efficient development of existing undertakings."[36]

After 1930, the Government followed a policy of no further alienation of land for the cultivation of rubber (and the 1934 Rubber Regulation Enactment stipulated that no new areas could be planted with rubber).[37]

The February 6, 1930 appointment of Sir Cecil Clementi provided impetus to the food growing effort. In a review of the major events of 1930, the Straits Times notes that

> "Sir Cecil has taken the keenest interest in one of Malaya's greatest needs, that of an adequate supply of rice within her own borders, thus making her independent of outside sources

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[36] R.L. German (comp.), (Malayan Civil Service), Handbook to British Malaya (Kuala Lumpur: Government of the F.M.S., 1935), pp. 43-44.

[37] Admittedly a good part of the motivation for this policy was to restrict supply in an effort to bring about a higher price for rubber.

> for the country's staple food. Warned by the disastrous experience of other countries when the rice crop failed, Sir Cecil has initiated a movement which it is hoped will in time make Malaya self-supporting so far as rice is concerned, and at the moment a special committee appointed by His Excellency, is examining the problem in all its bearing."[38]

Perhaps in reflection of Sir Cecil's keen interest, the various State Councils showed a heightened interest in the question of food production as revealed in newspaper accounts from the period. In a meeting of the S.S. Legislative Council in mid-1930, it was suggested that the Government consider creating a department "to find employment for unemployed persons and more especially to offer them agricultural pursuits upon state land under free and expert advice" and "to attempt to reduce the cost of living by encouraging the cultivation of rice, vegetables and other food-stuffs and to inaugurate a movement for establishing an economic balance between the production of food-stuffs on the one hand and the production of rubber on the other".[39] At the March 14, 1933 meeting of the Johore State Council, a Mr. W. Miller Mackay entered a plea that government should encourage the planting of padi in the country. "It seems right that some of the revenue of the country should go to help Malaya to create homes centered in the cultivation of their staple food. I should look for no return on such expenditure excepting the encouragement to labour, healthy independence and the creation of homes and population with a sure food supply. That appears to be a

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[38] The Straits Times, December 31, 1930, p. 12. Also see article of May 20, 1930, p. 13.

[39] Malay Mail, July 2, 1930, p. 11.

sufficiently worthy object to form a subject of inquiry."[40]

Still further measures were taken to encourage food output in the 1930's-- some of these measures expanding principles earlier established as part of Malaya's land policy. In 1932, '33 and '34, the Government granted a waiver of quit rent in excess of $2 an acre on all agricultural land.[41]

When an unpopular import duty of 15 cents a picul on all varieties of rice and padi was imposed, it was rationalized "not as part of a tariff for the purposes of general revenue, but to provide moneys for works, which are regarded as essential to the welfare of the country and for which adequate financial provision could not then be found by other means, namely, the improvement and extension of rice cultivation."[42] By the midnineteen thirties, reports such as the following were commonplace:

> "There has been a tendency for smallholders to attempt alternative crops. In Perak Central there have been considerable acreages of blukar and lalang grassland reopened for tobacco cultivation, and in the Dindings and Sitiawan, areas of fruit and food crops for home consumption and for sale at fairs have been reported to have been opened up by persons owning rubber holdings. Reports from Pahang also indicate that more interest

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[40] The Straits Times, March 15, 1933, p. 12. This view of rice cultivation must be viewed in the context of communalism. Communalism in turn, with three separate communities in more or less clearly delineated positions was an outgrowth of Malaya's economic dualism. Dr. Tempany referred to rice cultivation by Malays as "the soundest possible step to safeguard their standing in their own country..." speech reported in Straits Times, December 23, 1930, p. 16. Further comment will be made on this matter in Chapter XI.

[41] See stories in The Straits Times, February 1, 1933, p. 11 and April 26, 1934, p. 18.

[42] Ibid., April 23, 1935, p. 13.

> is being shown in other crops, especially padi cultivation, but that there is no tendency to abandon rubber for alternative cultivation...From Johore it is also pointed out that smallholders who leased their holdings before the introduction of rubber regulation are still in bad financial circumstances and are generally interesting themselves in padi-planting."[43]

It seems quite clear, then, that by the late thirties the "New Padi Policy" had "awakened an unprecedentedly widespread interest in the padi industry"-- though output was still far short of what was desired.[44] Furthermore the growing fear of war and the emergence of other concerns gave still further stimulus to the new agricultural policies. It became "the policy of His Majesty's Government...to encourage as much as possible local production of foodstuffs which will not only save foreign exchange and shipping space but also be beneficial in improving the health of peoples."[45]

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[43] Ibid., May 17, 1935, p. 13. Quoting from article in the Malayan Agricultural Journal (May No.) Rice cultivation was also being encouraged in the Straits Settlements. For an account of "two extensive drainage and irrigation works" which would make "over one thousand acres of swamp land in Malacca...available for padi planting in the next few months," see the article in the Straits Times, June 20, 1934, p. 13.

[44] The quote is from Tuan Haji Mohamed Ensoff, Senior Malay Cooperative Officer. The Straits Times article, December 15, 1939, p. 7. The Malay newspaper Majlis writes of the "apparent reluctance of Malay farmers to take full advantage of Government's plan to open up more padi lands" and attributes this to the "Government's vaguely defined policy." The newspaper asks for clarification on numerous points such as long-term conditions for holding land. Water rates, etc. See report of the article in The Straits Times, October 12, 1939, p. 12.

[45] Quoted from the memorandum as compiled by the Secretary of State for the Colonies, Mr. Malcolm MacDonald. Reported in The Straits Times, November 11, 1939, p. 10.

The intensified governmental policy of pre-war years as revealed in news accounts, was multifaceted as described below. One account describes the use of "propaganda in the Kampongs" in which the aid of Ketuas (elders) was enlisted to impress on farmers the necessity of planting more padi.[46] In an effort to entice the "1400 Malay farmers ....needed to exploit the potential padi lands at Tanjong Karang...water would be supplied free to the farmers...and the Selangor Government... offered Malay farmers padi lands already provided with irrigation systems at ten cents per acre for three years."[47] In 1939 it was announced that rice planters were to be guaranteed a minimum of $2.50 a pikul for padi delivered at the rice mill in Perak from 1940 to 1942 inclusive.[48] The Government decision to fix a minimum price for padi, according to Tuan Haji Mohamed Eusoff, the Senior Malay Co-operative officer, was "the practical form of encouragement the padi planter has been praying for."[49] To afford the "settlers a means of existing while doing the preliminary work in clearing their lots" the Department of Drainage and Irrigation "engaged them as far as possible on maintenance and construction work."[50] Once a settler was cultivating his padi land, he also became eligible for Kampong land. As explained by Mr. McNee, the senior Drainage and

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[46] The Straits Times, October 24, 1939, p. 10.

[47] Ibid., October 12, 1939, p. 12.

[48] Ibid., December 14, 1939, p. 10.

[49] Ibid., December 15, 1939, p. 7.

[50] Ibid., November 30, 1939, p. 10. Also see the article of Ibid., October 18, 1939, p. 10 regarding the provision of part-time work.

Irrigation Engineer, there was available in Sungei Manik "...a large area of Kampong land....and the proposal was to allot to each settler two acres...only those who had fully cultivated their bendangs were to be eligible for kampong land."[51] The Straits Times went so far as to urge editorially that the "Government should acquire areas of rubber land" on Singapore Island "and throw them open at a reasonable rent for the production of vegetables, fruit, pigs and poultry."[52] The practice of pig-rearing, which had formerly been largely confined to Chinese, was taken up in the late thirties by Tamil labourers on some estates.[53] Exhibitions were held to encourage people to grow food and as a means of improving the quality of food grown.[54] And finally, in reversal of a long-established policy, non-Malays were encouraged to grow rice. In a 5,000 acre area in Degong (Perak), the Government offered families parcels of six acres under what is described as "the new policy regarding non-Malays and padi lands."[55] In Selangor, it was announced that "the Sultan was willing to allow non-Malays to cultivate padi" though with a rising tin price and the return of many Chinese labourers to the mines,

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[51] Ibid., November 30, 1939, p. 10.

[52] Ibid., November 13, 1939, p. 8.

[53] For a description of this in the Sitiawan district of Perak see Ibid., November 15, 1939, p. 10.

[54] See the account of the "poultry, bird and vegetable exhibition" in Ibid., November 11, 1939, p. 11.

[55] The Straits Times, October 18, 1939, p. 10, the colonists were also provided part time work until the land came into production. The article states that "it is not known whether Government will grant a subsidy."

there was some doubt that many Chinese would avail themselves of the opportunity.[56] Ultimately, growing food became in Malaya a matter of patriotism as evidenced by the comments of Sir Shenton Thomas, the High Commissioner, before the Federal Council. "I ask all the State Governments to take up this matter [greater self-sufficiency in food] very actively and I know that they can rely on your Highnesses' keen support." Farmers were asked "to recognize that by growing padi they could assist in the defence of Malaya as well as provide for themselves."[57]

In addition to the wide-ranging effort to increase food production, the government stockpiled food. Noting that rice, meat, milk, sugar, salt, flour, fish and edible oils were "the most essential foodstuffs for our mixed population," the Government announced that"arrangements have been made to see that adequate reserve stocks of nearly all these commodities are always in existence."[58]

The new and vigorous agricultural policies of the post-Tempany era did indeed produce some beneficial results with food output increasing significantly.[59] This will be evident in the next Census Report taken in 1947, details of which will be forthcoming shortly. As we are dealing with post-War census data, however, it would seem appropriate to ask whether the changes in agricultural output resulted from the new agricultural policies or from the Japanese occupation of 1942-45. In fact, both were clearly important factors. For a decade before the outbreak

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[56] Ibid., October 24, 1939, p. 10.

[57] Ibid., November 21, 1939, p. 10.

[58] Ibid., December 9, 1939, p. 10.

[59] As earlier noted, however, self-sufficiency was not attained. The reasons why will be examined in Chapter XI.

of war new policies in agriculture--as described in preceding pages--were being enunciated and implemented. But it also becomes more and more clear in the late 1930's that the imminence of war was informing agricultural policy with its emphasis on greater self-sufficiency.[60] During the Japanese Occupation, the drive towards self-sufficiency was intensified, and though a lengthy discussion of developments during the war would be beyond the scope of this study, a brief account of developments in occupied Malaya would seem to be in order. A U.S. Office of Strategic Services study describes the situation that obtained during the Japanese Occupation.[61]

The primary concern of the Japanese after the fall of Singapore (February, 1942) was "to develop and export to Japan essential raw materials."[62] In this effort, Japan faced several major problems. The first was that " . . . external and internal trade and transport in Malaya" had come to "a virtual standstill since the Japanese occupation."[63] The second major problem was feeding the population of Malaya. "Following the fall of Singapore . . . there was sudden and widespread unemployment in Malaya" with consequent impoverishment of labourers who formally worked in rubber and tin.[64] At this time

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[60]It will be recalled that people were exhorted in the late 1930's to grow padi as part of the defense effort, that concern was expressed for saving foreign exchange and shipping space and that the government was stockpiling food.

[61]U.S. Office of Strategic Services (Research and Analysis Branch), Japanese Administration in Malaya No. 2072 (Washington: D.C., 1944).

[62]Ibid., p. 19.

[63]Ibid., p. 22. Ultimately the military authorities rationed the available shipping space by the issuance of permits.

[64]See Ibid., pages 23 and 19 respectively.

" . . . malnutrition and disease were widespread, while industries decayed and plantations became overgrown with the jungle."[65] "Rationing and other restrictions on sales of most consumer goods (rice, sugar, salt, flour, matches, soap, etc.) were started . . . a survey was taken of current stocks of all necessary goods. Shops were requested to report within ten days all commodities in their possession."[66] Even with rationing there was "terrible under-feeding of the population." " . . . during the Japanese Occupation of Perak the issue of ration cards was limited to 273,000 out of a population of 1,000,000."[67]

Of necessity, then, the "chief emphasis in the Japanese agricultural program for Malaya " was "to increase the production of food crops . . ."[68] A three year program to increase rice output was initiated. It consisted of further development of existing rice lands, introduction of new paddy strains and the opening up of new lands and the release of restricted land to non-Malays.[69] The Japanese effort

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[65]The Colonial Office List, Colonial Office List Historical and Statistical Account of the Colonies (London: HMSO, 1948) p. 163. Also see detail on p. 165. Here again, a permit system was ultimately devised. A permit from the Military Administration was required for the reopening of any store, factory or other business enterprise. Permits were also required to buy raw materials, transport goods and export or import supplies. Devices were worked out for the control of crucial industries. For example "the Singapore Rubber Association, made up of Japanese capitalists, was given direct management of the whole rubber industry." See U.S. Office of Strategic Services, op. cit., pp. 20 and 22 respectively for further detail.

[66]Office of Strategic Services, op. cit., p. 21. In addition, prices were fixed for some 800 types of goods including necessities such as clothing and drugs.

[67]The Colonial Office Report, 1948, "Labour and Trade Union Organization in the Federation of Malaya and Singapore," Report by S.S. Awbery and F.W. Dalley (London: HMSO, 1948) pp. 5 and 18 respectively.

[68]Office of Strategic Services, op. cit., p. 24.

[69]Ibid.

included not only improved methods of planting and more extensive manuring but the conversion of former rubber estates and farm lands into paddy fields by cutting down the trees and building irrigation systems.[70] The Japanese authorities ignored the Malay Reservations Enactments and "established in many of the states farming colonies for groups of Chinese, Indians, Arabs, Eurasians and even Burmese."[71] Equipment and seed was loaned against payment after the harvest and buffaloes were supplied at nominal prices for cultivating. Prizes were offered to those producing the highest yields. A "Labour Service Corps" was established based on a labour draft and the importation of labour from Java.[72] Japanese "soldier-farmers" were appointed to direct the efforts of the labourers "recruited" to cultivate rice. Thus during the Occupation, it seems reasonable to conclude that the growing of more foodstuffs was not only a rational response--an attempt by Malays, Chinese and Indians to "get on" as best they could in the anomolous situation of occupation--but perhaps the only possible response.

The 1947 Census to which we now turn would, in view of the foregoing, of course report more people in agriculture and show rubber and tin to be of diminished importance. But, significant for this study, the trend toward the rigid dualistic stereotype earlier described would to no significant degree be arrested during the War.[73]

The 1947 Census Report was the first complete census to be taken after the Depression and the Japanese Occupation. The Report states that "over three-fifths of the total working population

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[70] Ibid.

[71] Ibid., p. 25.

[72] More detail is provided in Ibid., pp. 23 and 25.

[73] The tenacity of the earlier established dualistic pattern is revealed in the fact that shipping and tin and rubber production would be restored to their pre-War levels by the late 1940's. See P.P. Courtenay, A Geography of Trade and Development in Malaya (London: G. Bell & Sons, Ltd., 1972)pp. 138-9.

of both sexes of the Federation of Malaya is engaged in five primary producing industries." The industries are "rubber cultivation", "coconut cultivation", "padi cultivation", "market gardening and stock rearing" and "tin mining".[74] And, notes the Report, "a considerable proportion of the remainder is employed in industries which subserve those five."[75] The table on page 275 shows the number employed in each of the five industries in 1931 and 1947.

The relatively diminished importance of tin and rubber are apparent. 1947 employment in tin stood at approximately 55% of the 1931 level while employment in rubber rose by less than one percent. In contrast to the two large export industries, employment in coconut cultivation increased by 12.3%, employment in padi cultivation rose by 21.9% while employment in market gardening and stock rearing rose by 41.1%. The amount of land planted with padi steadily rose in the 1930's as the following figures show.[76]

1930-31	603,070 acres
1931-32	635,130
1932-33	674,920
1933-34	691,110
1934-35	669,290
1935-36	674,900
1936-37	693,550
1937-38	682,120
1938-39	704,390
1939-40	727,550

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[74] Census of British Malaya, 1947 (London: Waterlow and Sons, Ltd.), p. 104.

[75] Ibid.

[76] Adapted from the Malayan Agricultural Statistics, 1940, op. cit., Table 28.

NUMBER OF PEOPLE EMPLOYED IN VARIOUS PURSUITS IN 1931 and 1947 (FEDERATION OF MALAYA) [77]

	Rubber cultivation		Coconut cultivation		Padi cultivation		Market gardening and stock rearing		Tin mining	
	1931*	1947	1931*	1947	1931*	1947	1931*	1947	1931*	1947
Penang	17,167	12,424	2,352	2,346	9,482	20,012	6,161	9,666	159	77
Malacca	32,741	28,617	408	290	1,287	7,485	3,091	6,036	56	160
Perak	107,399	91,925	8,802	11,275	43,213	76,024	20,217	24,258	51,507	27,130
Selangor	92,734	84,907	11,428	11,040	4,465	15,952	13,096	20,493	20,721	10,053
Negri Sembilan	63,994	50,151	182	180	15,219	25,842	9,138	7,244	1,840	1,305
Pahang	25,008	24,212	590	346	29,429	39,110	2,127	4,851	3,280	2,017
Johore	107,965	132,451	8,513	11,538	8,137	14,420	16,721	24,058	769	549
Kedah	41,692	54,908	188	498	107,130	113,355	5,257	7,073	667	431
Kelantan	10,068	18,333	1,889	1,812	109,355	99,224	3,205	6,642	1	7
Trengganu	2,590	6,334	837	188	38,246	34,376	1,388	2,361	139	564
Perlis	317	753	8	3	20,160	24,762	241	1,109	190	997
Federation of Malaya	501,675	505,108	35,197	39,519	386,123	470,592	80,642	113,817	79,329	43,318

*Excluding the unlocated population

[77] Census, 1947, op. cit.

Malaya did not attain self-sufficiency in rice, though domestic production as a percentage of her "total rice requirements," according to Tan, rose from 30.1% in 1920 to 33.3% "about ten years later" and to 37.5% in 1941.[78] The following table shows the increase in rice production in the 1930's.[79]

	Long Tons	
	Wet	Dry
1929-30	155,590	4,745
1930-31	250,504	13,698
1931-32	277,221	18,727
1932-33	279,786	20,135
1933-34	322,971	14,097
1934-35	321,074	10,090
1935-36	330,012	12,138
1936-37	309,693	9,541
1937-38	290,151	9,039
1938-39	328,234	13,221
1939-40	318,374	16,765

The beneficial results and the changes wrought in consequence of Malaya's new agricultural policy are detailed in the Colonial Office Reports and the Drainage and Irrigation Department Annual Reports. Three large padi schemes were initiated at Sungei Manik, Lower Perak (18,600 acres, 1932), Panchang Pedina, Selangor (12,000 acres, 1936) and Payer Besar, Pahang (3,000 acres, 1937).[80] The 1938 Drainage and Irrigation Department Report comments on the first two:

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[78] Tan, op. cit., p. 4.

[79] Malayan Agricultural Statistics, 1940, op. cit., Table 29.

[80] Tan, op. cit., p. 27.

> "The First and Second Stages of the new irrigation area at Sungei Manik in Lower Perak amounting to 8,119 acres, comprising 1,844 lots have been alienated with the exception of nine lots; 5,976 acres were planted this season, 1,405 acres more than the previous season, and an exceptionally good crop is expected with yields twice as good as last year. [81]

Concerning Pachang Pedina, it is related that

> " . . . out of a total of 15,500 acres made available for padi cultivation by the drainage control works constructed from 1932 to 1936 at a cost of $257,580 over 12,000 acres have been alienated and 9,000 acres, 1,000 more than last year, were planted this season . . . in addition 2,900 piculs of Sepat Siam fish were caught in the area at the close of the padi season when the water was drained off and sold for $26,100 an average price of $9 per picul. It should be remembered in considering these figures, that six years ago this area was impenetrable in deep swamp and dense virgin jungle." [82]

The available data indicate that the beneficial effects of irrigation were not confined to rice. "Much sound work of drainage and bunding has been done for the benefit of the smallholder in the last five years. The effect of the work has been truly remarkable. Thus in the Sabah Bernam Peninsula, trees which were previously barren are now producing from two to three hundred nuts for a two month period and in the Rantan Panjang area in Klang, the Agricultural Department reports the smallholders state that nut size has increased as well as yield, 1,000 nuts now producing 4 piculs of copra instead of 3 piculs as previously and 5 nuts producing one pint of oil as compared with 7 nuts previously." [83]

To examine the contention that dualism was well-maintained during the Depression and the anomalous situation of World War II, it has been necessary to somehow render the 1947 Census data comparable to

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[81] Annual Report of the Drainage and Irrigation Department (Kuala Lumpur: W.H. Wyatt, Government Printer, 1938), p. 2.

[82] Ibid.

[83] Ibid., p. 4-5. See also the 1938 Report regarding improvement of Kampong areas in Selangor, p. 6.

the earlier F.M.S. data. Thus the employment data have been added for the four states of the old F.M.S. and the resulting economic profile is closely similar to that sketched earlier. Agriculture was in the census year far and away the most important employment with 513,861 people employed in that sector. The next largest employment categories were "commerce and finance" (75,937 people); "public administration" (58,977); "mining and quarrying" (44,146); "transport and communications" (26,640); "fishing" (18,701); "woodworking" (17,747) and "manufacture and repair of metals, machines, conveyances" (17,503).[84] Extensive comment has been made on these categories earlier with particular reference to the earlier established analytical framework.

The comment regarding the similarity of the earlier sketched profile is also applicable to the U.M.S. Those states remained overwhelmingly agricultural. Agriculture was by far the largest employment category in every one of the former U.M.S. The next largest employment categories were "commerce and finance," "public administration," "fishing" and "transport and communications"--though none was nearly as important as agriculture.[85]

It is also noteworthy that the segregative aspect of Malayan dualism was not diminished in the 1931-47 inter-censal period. In both the states of the old F.M.S. and the U.M.S., Malays remained almost completely agricultural. 154,457 Malays worked in "agriculture" in the F.M.S. states and of this number 101,511 were engaged in "rice cultivation."

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[84]Calculated from Census, 1947; op. cit., pp. 446-447.

[85]Ibid. See for data corroborating these statements.

In Johore 40,685 Malays worked in agriculture, of whom 4,699 were rice cultivators (approximately 70% of the Malays in Johore were in rubber cultivation).[86] In the other states of the old U.M.S., the proportion of agricultural workers in rice cultivation was much higher. For example in Kedah, out of 129,187 Malays who worked in agriculture, 103,909 were rice cultivators. The respective figures for Kelantan were 117,836 and 94,839. The next largest employment categories for Malays were "public administration and defense" (22,591 in the F.M.S. states, 10,384 in Johore and 6,103 in Kedah); "fishing" (7,769 in the F.M.S. states, 3,051 in Kedah, 620 in Perlis, 12,048 in Trengganu) and "commerce and finance" (4,878 in the F.M.S. states, 3,173 in Kedah, 7,950 in Kelantan, 460 in Perlis).[87]

The position of Malaya's Indian population was also largely unchanged during the Depression decade. The 1947 censal data shows agriculture to be the largest employer of Indians in both the F.M.S. and U.M.S. states. In the four former F.M.S. states, 117,967 Indians found employment in agriculture with 98,396 of them working in rubber cultivation i.e. as estate labourers. In Kedah the respective figures were 24,001 and 23,246. In Johore, the figures were 24,273 and 22,056. Following agriculture the largest categories of Indian employment in the F.M.S. in 1947 were "public administration," which included defense as a sub-category in this Census Report, with 23,116; "commerce and finance" with 12,403; "transport and communications" with 8,342; "mining and quarrying" with 5,875 and "private domestic service" with 5,347.[88] In the U.M.S. states the only other categories of any importance were

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[86] Ibid., p. 448.
[87] Ibid., pp. 448-451.
[88] Ibid., pp. 460-463.

"commerce and finance" and "public administration." 2,338 were employed in the former category in Kedah in 1947 and 1,669 in the latter. The respective figures for Johore were 3,014 and 4,004.[89] There were, of course, many Indians repatriated during the 1930's. Thus, not surprisingly, Indian employment in all of the above categories was lower than in 1931 with the exception of "public administration" in which employment had already fallen sharply by 1931.

Analysis of the data on Chinese employment indicates that they too remained in the same occupations they had held over the past twenty years. In the four F.M.S. states, 190,003 Chinese were employed in agriculture--though within agriculture the picture is more varied for the Chinese than for the other "races." Of the 190,003, 94,130 Chinese worked in rubber cultivation, 29,148 worked in rice cultivation, 47,755 were in "market gardening, etc." and 5,513 were engaged in "forestry, woodcutting, etc."[90] In the U.M.S., the number of Chinese employed in agriculture was also high (Kedah: 18,440, Johore: 94,068, Kelantan: 4,048) and the proportions in the various sub-categories were very similar.[91] The next largest employment categories in the four F.M.S. states were "commerce and finance" with 56,819 Chinese employees; "mining and quarrying" with 32,482 (30,441 of these were in tin-mining and 1,381 were in coal mining); "manufacture and repair of metals, machines, conveyances, jewelry, etc." with 13,588; "transport and communications" with 12,896 and "woodworking" with 11,667.[92]

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[89] Ibid., pp. 462-3.

[90] Ibid., p. 456.

[91] See Ibid.

[92] Ibid., pp. 456-459. In Kedah the largest employment categories were much the same. Following agriculture, in numbers employed, were "commerce and finance" (10,630); "manufacture and repair of metals, machines, conveyances, jewelry, etc." (1,892); "woodworking" (1,756) and "transport and communications" (1,415).

It is also noteworthy that Chinese employment, also reflecting repatriation, fell in most categories between censuses. An important exception to this was in market gardening.

Having examined in detail the persistence of dualism in the 1930's and the failure of Malaya to achieve self-sufficiency in rice, in spite of the more vigorous post-1929 policy, some explanations must be offered. The explanations comprise a complex of social and economic factors including the British policy of making rice-growing a Malay preserve, fragmentation, indebtedness and the greater attractiveness of rubber over rice as a peasant crop. These factors will be commented on at length in Chapter XI.

Chapter X

Welfare

It is now possible to make some observations regarding changes in welfare in Malaya in the twenties and thirties. An assessment of welfare would,of course, be greatly aided by the availability of reliable figures on national income. Comparison of such data with population data would provide a crude measure of per capita income for these years. Two factors, however, are strongly against this approach. The first relates to the reliability of the income figures and the second relates to the reliability of intercensal population figures.

Actually the income calculation in Chapter VIII represents the sum of two quantities--the figures of primary production and the gross profits of foreign trade--as a "sufficiently close approximation" to national income.[1] Serious doubt is cast on the reliability of these figures by the Commission's treatment of gross profits(profits which were almost totally exported anyway and thus would not augment the indigenous standard of living), and the inclusion of Department of Agriculture ad hoc estimates for minor crops. Also, the usefulness of the figures in measuring welfare changes is limited because it appears that the Commission did not take into account agricultural produce consumed by the producer. Income in kind was a very large item in the 1930's--especially for the Malay community.

The main difficulty with the population data lies in calculation of reliable intercensal population figures--figures that would be required to estimate changes in per capita income.[2] In estimating

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[1] See Chapter VIII for more detail on how various items were valued in this calculation and how income in kind might be estimated.

[2] The 1921, 1931 and 1947 Census figures can be accepted with some measure of confidence for our purposes though it should be noted that "birth registration is unpopular amongst Asiatics in Malaya . . ." and that registration of births and deaths falls considerably short of the standards obtaining, say, in England. See the Census of British Malaya, 1947 (London: Waterlow and Sons, Ltd.) and especially pp. 106-109 for an extended discussion of these points.

intercensal population figures in the past, "three methods have been commonly used."[3]

The Arithmetical Method "assumes that the population receives equal increments in equal times. Thus, for instance, the population on the 1st April, 1932 would be estimated as the sum of the population on the 1st April, 1931, and one tenth of the increase shown by the census to have occurred over the previous decade. It is worthless in Malaya . . . "[4] The second method, the Geometrical Method, assumes that population increases at a constant rate. " . . . there is no conceivable reason why it should give results on which any reliance can be placed, when applied to a population the growth of which is mainly determined by migration."[5] The third and preferred method is the Balancing Equation Method which is based on the fact that the increase of population over a given period must be equal to the sum of the differences between births and deaths and the difference between immigrants and emigrants. "This method is infallible if both birth and death registration and migration statistics are perfect."[6]

The problem with this preferred method is twofold: First, as earlier noted, the registration of births and deaths is not perfect and second, migration statistics are not reliable. The 1931 Census makes the latter point very strongly. "The statistics of immigrants may be

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[3] Census of British Malaya, 1931, (London: Waterlow and Sons, Ltd.) p. 111.

[4] Ibid.

[5] Ibid., p. 112.

[6] Ibid.

approximately accurate" but the statistics of emigrants are hopelessly low." The figures on Chinese migration "are subject to colossal error."[7]

In view of the inadequacy of income data and intercensal population data, other approaches to measuring welfare changes must be found. This study proposes several approaches. In the first approach the prices and assigned weights of four important consumption items are used to construct an index for the late twenties through the late thirties.[8] Following this, available wage data is summarized and put into index form for comparison with the price index. The second approach compares rice consumption to estimated intercensal population on the assumption of population growth rates ranging from minus one to plus three percent. Such approaches, however, have problems and limitations and thus they will be supplemented liberally by newspaper accounts from the 1930's. These several approaches taken together should afford a realistic view of welfare changes in the 1930's.

Construction of the index begins with recognition of Malaya as one of the most open economies in the world-- Malaya's population

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[7] Census, 1931, op. cit., p. 112-113. The Census Report is not very helpful in understanding how such conclusions were reached. "It would take far too long to describe the investigations carried out by Mr. Purcell and the writer into the problem of this discrepancy or trace the course of reasoning by which the writer reached the conclusion that departures were undercounted", p. 112. See for rather lengthy discussion and figures on immigration.

[8] The index would have covered the early twenties but there were not sufficient data. The index will be expressed in the form of a Weighted Arithmetic Mean in which each index number (i.e., relative price) of each item is multiplied by the "appropriate" weight and the sum of the products is divided by the sum of the weights. This is an adaptation of the Weighted Arithmetic Mean as computed by F.C. Mills, Statistical Methods, (third edition), (London: Sir Isaac Pitman and Sons, Ltd., 1965) pp. 452-3.

being dependent on imports for such crucial goods as rice and cotton piece goods.[9] Rice and cotton piece goods represent the two most important items in the budgets of Malaya's communities. Tea and meat are the other two items to be included in the index. Being important items of trade, price data on rice, cotton piece goods, tea and meat are easily obtained.

The following table shows the price of Rangoon, No. 1 rice for the years 1924-40. The column on the right expresses the price data in the form of a price index or "relative price":

	PRICE OF RICE Rangoon, No. 1 per picul	PRICE INDEX[10] (1924 = 100)
1924	$7.06	100.00
1928	6.23	88.24
1929	6.39	90.51
1930	5.58	79.04
1931	3.74	52.97
1932	3.73	52.83
1933	3.04	43.06
1934	2.76	39.09
1935	3.60	50.99
1936	3.44	48.73
1937	3.75	53.12
1938	3.74	52.97
1939	3.62	51.27
1940	5.05	71.53

[9] See, for example, the 1938 Colonial Office Report (London: H.M.S.O.), p. 43. It lists Malaya's principal imports among which are 245,637 tons of rice (valued at $17,524,881) and 24,803,538 yards of piece goods (valued at $4,662,038). These two items were important imports throughout the 1920's and '30's.

[10] The data are taken from Malayan Agricultural Statistics, (Kuala Lumpur: Registrar General of Statistics, F.M.S. and S.S., 1939) Table 97. The terms relative price and price index are synonymous. The former is used by Mills, op. cit. In the rest of this study, the latter term (cont.)

The second item to be included in the index is cotton piece goods (dyed). A price index for this item-- an item which represents the second largest budget expenditure-- follows:

(1924 = 100)	PRICE INDEX[11] (Cotton Piece Goods, Dyed)
1924	100.0
1928	86.2
1929	86.2
1930	62.1
1931	44.8
1932	41.4
1933	44.8
1934	41.4
1935	44.8
1936	41.4
1937	55.2
1938	58.6

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[10](Cont. from previous page) will be used. Rangoon rice is "the staple food of Indian Labourers." See 1938 Colonial Office Report, op. cit., p. 52.

[11]Malaya: Average Prices, Declared Trade Values, Exchange, Currency and Cost of Living, (Singapore: Department of Statistics, 1935 and 1939), p. 37, from which this data is taken calculates a price index for dyed cotton piece goods and for "grey unbleached and white bleached." Raw price data are not given. There is very little difference between the two. See, for example, the series on p. 37, Malaya: Average Prices . . ., 1939. Dyed goods accounted for a somewhat larger amount of imports than the other category and therefore the former was chosen for inclusion in the index being constructed. The greater importance of dyed goods is confirmed, among other places, in the Great Britain Overseas Board of Trade, Report on Economic Conditions in British Malaya (London: HMSO, 1934), p. 26. Bauer's criticism of some of the practices followed in Malaya: Average Prices . . . is here taken note of. (See his footnote in The Rubber Industry (London: Longmans, Green and Co., 1948), p. 17.) His criticism does not pertain to inclusion of price data on this item in constructing the present weighted index.

The third item to be included in the index is meat. The price index follows:

(1924 = 100)	PRICE INDEX OF MEAT[12]
1924	100.00
1928	105.33
1929	106.89
1930	109.73
1931	92.90
1932	79.66
1933	72.52
1934	75.28
1935	78.96
1936	74.59
1937	78.71
1938	88.58
1939	79.61

[12]The average annual price of meat is arrived at by adding the quantities of cattle, goats, sheep and swine imported into Malaya as reported in Malayan Agricultural Statistics, 1939, op. cit., Table 69 and dividing the total dollar value of meat imports by physical quantity. The 1924 price thus obtained is used as a base year in calculation of an index number for subsequent years.

The fourth item to be included in the index is tea. The price index follows:

(1924 = 100)	PRICE INDEX OF TEA[13]
1924	100.00
1928	112.37
1929	98.71
1930	84.79
1931	62.63
1932	59.02
1933	68.04
1934	72.16
1935	77.84
1936	60.05
1937	58.76
1938	57.99

Having expressed raw price data in the form of price indices, the next task is deciding what are "appropriate" weights to assign the four items. There are not available extensive empirical data on which the weighting can be based. Some arbitrariness, thus, would seem inevitable. It is here proposed to assign the following weights: Rice-- 80, Cotton goods-- 12, Meat-- 6, Tea-- 2

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[13]The average annual price of tea is arrived at by dividing dollar value of imports by quantity (in lbs.) as reported in Malayan Agricultural Statistics, 1939, op. cit., Table 46. The 1924 price thus obtained is used as a base year in calculation of an index number for subsequent years.

The "reasonableness" of this assumption finds corroboration in the few budget studies available.[14]

The Index (Weighted Arithmetic Mean) is calculated below for the base year, 1924 and for 1928:

COMMODITY OR ITEM	INDEX 1924	WEIGHT	INDEX X WEIGHT	INDEX 1928	WEIGHT	INDEX X WEIGHT
Rice	100	80	8000	88.24	80	7059.20
Cotton goods	100	12	1200	86.20	12	1034.40
Meat	100	6	600	105.33	6	631.98
Tea	100	2	200	112.37	2	224.74
TOTALS		100	10,000		100	8950.32

Index (Weighted Arithmetic Mean), 1924 = $\frac{10,000}{100}$ = 100

Index, 1928 = $\frac{8950.32}{100}$ = 89.50

Following the same formula and using the earlier provided price index numbers, the following results are obtained:[15]

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[14]See the Monthly Budget for Indian Labourers of September, 1925 as prepared by the Indian Immigration Committee and reproduced in J. Norman Parmer, Colonial Labour Policy and Administration (Locust Valley, New York: J.J. Augustin Inc., 1960), p. 278. Also see the Household Budget Survey of the Federation of Malaya (Kuala Lumpur: Department of Statistics, F.M.S.), in particular pp. 5-8. As this study is from the 1950's it is beyond the time span covered by this study. Yet the study is helpful in providing budget figures for Malaya's three major communities-- Malays, Chinese, Indians and in providing separate figures for each race in urban and rural areas. The relative magnitudes probably changed little between the thirties and the fifties. There can, of course, be no "correct" weights in a study of this type. The studies can only be cited as corroborating the "reasonableness" of the assumed weights.

[15]The calculations of these index numbers are included in an appendix to this chapter.

1929 = 91.14	1934 = 42.20
1930 = 78.96	1935 = 52.46
1931 = 54.58	1936 = 49.63
1932 = 53.19	1937 = 55.02
1933 = 45.54	1938 = 55.88

The index thus calculated may be taken as giving a reasonably accurate picture of the fall in the cost of living during the Depression. Indeed, the results are generally consonant with those reported in the Colonial Office Reports of the time. Beginning with the Colonial Office Reports of the early 1930's, separate cost of living indices were constructed for Asiatics, Eurasians and Europeans with 1914 as a base year. Considering the Asiatic cost of living and taking three years at random from the 1930's, it is reported that the 1932 cost of living was 73.6% of the 1930 figure, the 1935 was 73.3% of the 1930 figure and the 1938 was 74.0%.[16] According to the index constructed here, the 1932 cost of living was 67.4% of the 1930 figure, the 1935 figure was 66.4% of the 1930 figure and the 1938 figure was 70.8%.[17] Thus the figures may be used with some confidence in comparison with figures on wages.

The best available data on wages are those for estate labourers.[18] Beginning in the 1920's, the course of estate wages may

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[16] Information was compiled from the Colonial Office Reports. With the cost of living index at 147.5 for 1930 (1914 = 100), the respective computations for 1932, 1935 and 1938 are $\frac{108.6}{147.5}$, $\frac{108.1}{147.5}$ and $\frac{109.2}{147.5}$.

[17] The respective computations are $\frac{53.19}{78.96}$, $\frac{52.46}{78.96}$, and $\frac{55.88}{78.96}$.

[18] Again, the limitation of available data is obvious. Ideally, we should like to have available income data on all of Malaya's communities and a reliable way of estimating income in kind. The data on estate wages as used here apply mostly to the Indian community. The 1938 Colonial Office Report, op. cit., is of interest on this point. (cont.)

be traced through the late 1930's. Throughout the 1920's, the wages of estate labourers maintained a steady upward trend. The wage rates set for tappers and weeders, who form the vast majority of labourers on the estates, were 40¢ a day for men and 30¢ a day for women in 1922, 1923, and 1924. In 1925, the wages for men and women were increased to 45 and 35 cents respectively. This wage obtained through 1928.[19]

In 1928 "after protracted correspondence between the Malayan Government and the Government of India and a detailed examination of the cost of living, certain standard rates of wages were fixed and applied with statutory force to selected areas known as key areas."[20] It was felt that with labour mobility, market forces would equalize wages paid in key and non-key areas. The wages, which took effect in February, 1929, were 50¢ a day for men and 40¢ for women with 58¢ and 46¢ respectively being paid in less accessible and more expensive areas. The Colonial Office Reports describe these rates as "based on a standard budget including foodstuffs, clothing, festival expenses, household equipment, savings, return passages to India and maintenance of dependents."[21]

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[18](cont.) "Chinese labourers on estates are usually paid by results. By the end of the year it was estimated that their earnings were 60-65 cents a day. Chinese on mines fared worse. It is impossible to give a figure of actual earnings because the labourers in most cases make their own arrangements to share a much reduced volume of work amongst themselves.", p. 52.

[19]Neelakandha Aiyer, Indian Problems in Malaya (Kuala Lumpur: The Indian Office, 1938), p. 120. It may be of interest to note that the average daily price of rubber per pound varied between 9 1/8d. and 2 S. 11 1/16d. between 1922 and 1928.

[20]V.S. Srinivasa Sastri, Report on the Conditions of Indian Labour in Malaya (Kuala Lumpur: F.M.S. Government Press, 1937), p. 5.

[21]Colonial Office Report, 1933 (London: HMSO), p. 45.

With the onset of the Depression and rubber's sharp decline in price, the earlier established wages were reduced by 20 percent to 40¢ a day for males and 32¢ for females with 47¢ and 37¢ being paid in the less accessible and more expensive areas. In fact many labourers received less than the established rates. As Sastri relates, "since the choice lay between allowing reductions in the rates and seeing estates closed and large numbers of labourers wholly unemployed, the Labour Department permitted the payment of less than the standard rates, but kept a careful check upon total monthly earnings . . . "[22]

Throughout 1930 and 1931, the gross earnings of Indian labourers continued to fall. This came about by outright reduction of wage rates in non-key areas and by the demand in key areas of a full nine hour day for a standard day's wage (approximately 6 1/2 hours had earlier been regarded as a full day*) or, alternatively, acceptance of payment in proportion to the number of hours worked.[23]

Economic conditions also necessitated other drastic policies.

> ". . . to ensure frugal comfort to all labourers and to keep conditions level in both key and non-key areas a scheme was evolved . . . whereby a monthly sum representing a decent subsistence wage for the worker was fixed by the Indian Immigration Committee and all labourers on properties where this wage was found not to be earned were mustered and informed that if they desired to return to India they would be repatriated . . ."[24]

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[22] Sastri, op. cit., p. 5. More will be said on this later in the chapter.

[23] The question of work intensity will be more fully discussed later in the chapter.

[24] Colonial Office Report, 1932 (London: HMSO), p. 45-46.

*The seemingly short 6 1/2 hour day is explained by the fact that latex does not run when it becomes too hot.

The number of workers who applied for the government sponsored repatriation varied inversely with the price of rubber.[25]

By the latter part of 1933 wages of 28¢ for a man and 24¢ for a woman had become general. These wages, combined with the drop in the cost of living, presented an attractive enough inducement to immigrate to Malaya that a "considerable number of labourers . . .have paid their own fares across since October, 1933." [26]

These wages continued in effect until May, 1934 when they were raised to 35¢ for men and 28¢ for women "with sufficient afternoon work at proportionate rates to bring the earnings up to an average of 40¢ and 32¢ respectively."[27] In 1935, rubber restriction began to make itself felt. With output reduced and with no compensating increase in price, the amount of work available decreased. As labourers were not discharged, wages for morning work of 35¢ for men and 28¢ for women became common.

In 1936, the beneficial effect of rubber restriction, the mechanics of which were explained in Chapter VIII, began to be felt. The price of rubber rose during the year and the permissible output increased at the same time. Many estates began replanting programs under the Rubber Regulation Scheme. The price and export allowance of tin also rose. The effects of these developments in the rubber and tin sectors were more employment available and higher wages. New workers

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[25] Colonial Office Report, 1933, op. cit., see p. 46.

[26] Ibid.

[27] Colonial Office Report, 1934 (London: HMSO), p. 55.

coming into Malaya-- both Chinese and Indian-- were readily absorbed.

> "In no cases, on well-organized estates, were wages of less than 40¢ for men and 32¢ for women paid for tappers in the latter half of the year. The operation of bonus schemes and payment for afternoon work, etc. meant that higher earnings than these were common in most parts of the country."[28]

The late thirties saw further improvements in wages followed by a reduction in 1938. These wage changes depended directly on developments in rubber and tin particularly on the operation of rubber control. At the beginning of 1937, wages on estates were 45¢ for men and 36¢ for women. With the announcement that the export quota of rubber for the third and fourth quarters would be 90%, the Rubber Grower's Association recommended an increase to 50¢ a day for men and 40¢ for women. These rates became effective on the 1st of April, 1937. In May, 1938, the wages were reduced to 45¢ for men and 35¢ for women.[29]

These wage data are summarized below and put in the form of an index.

	WAGES		INDEX (1924 = 100)	
	Men	Women	Men	Women
1922	.40	.30	100.0	100.0
1923	.40	.30	100.0	100.0
1924	.40	.30	100.0	100.0
1925	.45	.35	112.50	116.67
1926	.45	.35	112.50	116.67
1927	.45	.35	112.50	116.67
1928	.45	.35	112.50	116.67
1929	.50	.40	125.0	133.33
1930	.40	.32	100.0	106.67
1931	.30	.27	75.0	90.00
1932	.26	.22	65.0	73.33
1933	.32	.26	80.0	86.67
1934	.35	.28	87.5	93.33
1935	.35	.28	87.5	93.33
1936	.40	.32	100.0	106.67
1937	.50	.40	125.0	133.33

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[28] Colonial Office Report, 1936, (London: HMSO), pp. 63-64.

[29] Colonial Office Report, 1938, (London: HMSO), see p. 52 for more detail.

The earlier computed index and the wage index for men and women estate workers are compared below.

	W.A.M. INDEX	MEN WAGES INDEX	WOMEN WAGES INDEX
1924	100.00	100.00	100.00
1928	89.50	112.50	116.67
1929	91.14	125.00	133.33
1930	78.96	100.00	106.67
1931	54.58	75.00	90.00
1932	53.19	65.00	73.33
1933	45.54	80.00	86.67
1934	42.20	87.50	93.33
1935	52.46	87.50	93.33
1936	49.63	100.00	106.67
1937	55.02	125.00	183.33
1938	55.88		

It would appear that one of the most significant conclusions suggested by the preceding exercise is that those who were still working during the Depression years did not do badly. The data indicate that cost-of-living fell by more than wages. However, to conclude from this that welfare in general improved during the 1930's would be too simplistic and would ignore many complicating factors. Consideration of the important work of Jurgen Kuczynski will help to expand this point.

Many of Kuczynski's observations on labour conditions in the British Empire, and particularly in India's textile industry apply, mutatis mutandis, to Malaya.[30] Kuczynski raises questions about cost-of-living indices "by which we measure the change in prices" and notes that "this refers only to conditions in certain important towns."[31] Very

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[30]See Jurgen Kuczynski, A Short History of Labour Conditions, British Empire, 1800 to Present Day (London: Frederick Muller, Ltd., 1942).

[31]Ibid., p. 36.

large discrepancies in price occur between different states and areas of the country. The importance of such discrepancies in Malaya's case is illustrated by a letter to the editor from a Mr. F. Rasmussen, an estate manager. "I live 2 1/2 miles from the Malacca border. There the prices for stores and clothing are considerably less than on the other side of the border in Negri Sembilan. The coolies on one side of the gate obtain everything at nearly half, in some cases at one-third the price of what the coolies on the other side pay."[32] He provides examples of the same brand of condensed milk selling for 17 to 18¢ in Negri Sembilan and 11¢ in Malacca, sugar selling at 11¢ per catty in Negri Sembilan and 5¢ in Malacca and rubber soled shoes selling for 60¢ in Negri Sembilan and 20¢ in Malacca. "All cloth," Mr. Rasmussen continues "is 33 percent higher in F.M.S. than in Malacca."[33]

Kuczynski also speaks of the practice by which employers deducted "almost at will considerable amounts from the pay... Reasons for deductions were.... 'late attendence', 'insubordination', 'bad and negligent work'... Often the management did not even bother to specify for which offence fines were deducted."[34] Though fining workers and witholding of pay were illegal in Malaya, there is considerable evidence that both occurred. The Straits Times of January 21, 1930 reports that an estate manager, Mr. R.E. Cole was "served with a criminal summons from the Controller Labour, Kedah, charging him with making an agreement with

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[32] The Straits Times, April 3, 1937, p. 13.

[33] Ibid. Although Mr. Rasmussen doesn't explain why prices are higher, transport costs and differentials in rate of taxation, etc. between states would seem likely explanations.

[34] Kuczynski, op. cit., p. 37. Admittedly such deductions probably were made before the Depression too. In the circumstances of the 1930's, though, labourers would have fewer alternatives open to them and thus it would be easier for employers to "get away with" these practices. Indeed before the Depression, there was considerable concern about labourers absconding.

labourers employed by him for deductions for or in respect of any bad or negligent work or injury to materials or property on Paya Besar Estate, contrary to the provisions of section 89 and punishable under section 93 of the Labour Code and secondly that he deducted two days' pay from the wages earned by Sokokanan, a labourer employed by him during the month of November..."[35] Other accounts suggest that short-payment and non-payment were problems of considerable magnitude. The "case against S.M. Ibrahim, former manager and partner of the now defunct firm V.S. Madar and Co. came up before the Magistrate, Mr. H.A.L. Luckham, today for alleged non-payment of wages to labourers under his control..." An agreement was "arrived at by which the defendant will pay $3,000 to the Labour Department to be paid over to the labourers... Three of over 200 summonses against V.S. Madar also for non-payment of labourers' wages were also heard in the Police Court today."[36] Understandably, it is not possible to quantify the instances of such illegal practices as fines and short-payments to labourers. To the extent that such practices occurred, however, focusing on standard wages as presented in the index provides less than an accurate view.

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[35] The Straits Times, January 21, 1930, p. 14. Also see January 29, 1930, p. 12 for further details of this case which involved an assault on the manager by two Tamil coolies.

[36] The Straits Times, April 7, 1937, p. 13. There were other ways of effecting short-payment to labourers. See the account of 120 coolies of Transkrian Estate going on strike on being informed that the long-standing practice of paying bonuses for cleaning cups was to be discontinued, The Straits Times June 15, 1937, p. 13. Also, see the account of a "well-known Chinese miner" being forced by "angry coolies" to "leave his car behind at his mine as security for unpaid wages", The Straits Times, December 18, 1930, p. 12 and the account of a "sit in" by coolies demanding their pay, The Straits Times, June 12, 1930, p. 17.

It should also be stressed that the wage index refers only to those who remained employed on a full-time basis during the Depression and were actually paid the standard wage. Thus it would be ideal if wages could be corrected according to changes in "short-time" and unemployment, both serious problems in the thirties and particularly in the early thirties.[37] There are not sufficient data to construct such an index for Malaya in the 1930's. However, some appreciation of the closely related problems of unemployment, repatriation and short-time can be gained by perusal of contemporary newspaper accounts.

A good starting point for a discussion of these problems is to note that by 1929, "labour conditions in Malaya were . . .probably the best enjoyed by agricultural labour anywhere in South or Southeast Asia and were, of course, far better than in South India."[38] The early 1930's, however, saw a very swift erosion of these labour conditions. These changes can only be sketched in broad outline because, as Bauer states, "There is a studied vagueness in the majority of the official Malayan publications of 1931-33 dealing with the labour situation, including wages, earnings, and the conditions of repatriation."[39]

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[37]See Jurgen Kuczynski, Labour Conditions in Western Europe (London: Lawrence and Wishart, Ltd., 1937) p. 30 and p. 52, on this point. The "limits of statistical expression" (Kuczynski's expression) are here obvious. See the discussion on pp. 32-33, regarding the difficulty of taking account of all pertinent factors in a single index.

[38]P.T. Bauer, The Rubber Industry (London: University of London Press, 1948) p. 224.

[39]Ibid., p. 227.

The years 1929-33 were the worst of the Depression and during this period, estate employment fell heavily--from an estimated 258,000 to 137,000.[40] Though reliable data are not available on smallholdings, it is also known "that the number of outside tappers employed on smallholdings was greatly reduced during the Depression and many owners who had previously relied on outside labour had to dispense with it."[41] Many of these returned to subsistence agriculture as described earlier. Also the Labour Department was besieged with thousands of unemployed labourers in need of assistance. The Penang Indian Unemployed Relief Fund noted in late 1930 that "almost daily a considerable number of Indians are being thrown out of work" and it states that the problem was not confined to estate workers. "Little or nothing has been done to stem the tide of unemployment among the middle classes--clerical hands, dressers, conductors and others--who every day are losing their employment through no fault of their own as a direct result of the extensive policy of retrenchment." [42] After suspending assisted immigration from India to Malaya, the government set out on a policy of repatriation of unemployed workers. Between August and the end of December, 1930, 67,000 South Indians (including 11,000 minors) were repatriated through the Labour Department.[43] More Indians left Malaya than came in during the 1930-33 period with assisted immigration suspended. Fear of labour

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[40] J. Norman Parmer, Colonial Labor Policy and Administration (Locust Valley, New York: J.J. Augustin Inc., 1960) p. 273. With this fall in estate employment, one might expect net emigration from Malaya of approximately 121,000 (the difference between 258,000 and 137,000) for this period. It appears that in fact net emigration was considerably lower than that--though it should be remembered that the census reports state repeatedly that the figures on emigration are probably less than totally accurate and complete. It is in fact quite likely that rather than emigration keeping pace with dismissals, many who were dismissed "scraped along" growing what food they could, living with relatives or begging. It is also worth noting that some Chinese and Indians regarded themselves as Malayans and thus did not plan to return to China or India.

[41] Bauer, op. cit., p. 225.

[42] The Straits Times, December 14, 1930, p. 18. There were also Chinese and European Unemployed Relief Funds which made frequent appeals for donations and other help in the newspapers.

[43] Bauer, op. cit., p. 225.

shortages led to resumption of assisted immigration to Malaya in 1934 and, with employment in Malaya appearing sufficiently more attractive than work in India, the migrational deficit of the early thirties was reversed. A migrational surplus was registered between 1934 and 1937 though 1938 to 1940 again saw a deficit.

Repatriation was also looked to as a means of dealing with Chinese umemployment. On reporting that the government was disallowing the use of a quarantine camp at Pulau Jerejak as a home for unemployed Chinese, it was announced that "the Chinese Protectorate is prepared to repatriate all the inmates wanting to return to China."[44] In a leading article that describes unemployment among Chinese as having reached "the proportions of a menace, not only in Singapore but in the Kinta Valley and other parts of the country", the Straits Times reports that the "number of coolies applying for repatriation has grown alarmingly... In normal times about 50 coolies are sent back to China every year... On Monday of this week 66 applicants were shipped from Singapore. A further 104 sailed on Tuesday. And on Wednesday the Protectorate was besieged by a crowd of 240 coolies."[45] It is also noteworthy that some workers

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[44] The Straits Times, December 15, 1930, p. 12.

[45] The Straits Times, June 6, 1930. The article describes some of the applicants as "on the borderline of starvation". Bauer, op. cit., remarks that the hardships of the Chinese to whom free repatriation was extended only belatedly was greater than that of Indian estate workers, p. 228. Many Chinese, as well as others, turned to hawking. "Street hawking...does provide employment or a means of livelihood for a large number of poor widows, old people and those unfit or unable to earn their living in any other way." The Straits Times, January 27, 1930, p. 11. Also see the discussion by the Singapore Municipal Commissioners of the problem of hawkers and beggars, The Straits Times, January 29, 1930, p. 17. Also of interest are the many letters commenting on and complaining about hawkers and beggars. Of particular poignance is an anonymous letter printed in the Malay Mail, July 16, 1930, p. 12 without correction of faulty grammar, spelling and punctuation: "We were lately discharged from rubbers estates...so we bought some vegetables...and went out to sell in the streets...having sold only a few cents were arrested by the (cont.)

who were offered free repatriation elected to stay. "These were particularly numerous on estates on which workers had good facilities for cultivating food crops or where the manager had treated them especially well."[46]

Another important question in this discussion of welfare is whether the standard wage provides an accurate indication of income actually received. Presumably, "employers of Indian estate labourers" were "legally bound to offer 24 days' work or the equivalent wages" during the period under consideration.[47] But as the earlier discussion of fines and withholding of wages suggested the matter is not so straightforward as that. There were several ways in which individual income or family income might be reduced. In some cases, the prescribed standard wages were simply not paid. Governmental bodies such as the Penang Legislative Council viewed this-- probably with justification-- as a matter of equity in that it enabled employers to spread available work over a large number of labourers rather than being forced to retain the "favoured few."[48] It

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[45](Cont. from previous page) Police and taken to the stations... There we were detained in the meantime the vegetables went rot and later we were hauled before a magistrate and find... Hungry and no-where to go, what shall we do. There is only one way open for us, that is to steal or rob... We hope we would come across some of the Commissioners and get them to help in one or other... We hadn't a proper meal for the last three months and our dependents in China are starving." The Straits Times of June 10, 1930, p. 19 speaks of the "increasing outbreaks of gang robberies" that "have taken place in mining villages."

[46]Bauer, op. cit., p. 231. Bauer discusses repatriation in greater detail than called for here. The cultivation of food by estate workers will be discussed below.

[47]The Straits Times, May 1, 1930. Also see Bauer, op. cit., p. 222.

[48]Malay Mail, July 8, 1930, p. 9.

is also interesting to note the considerable resourcefulness displayed by employers in getting around the legal requirement that standard wages be paid. It was suggested at a meeting of the Malacca Planters' Association that "we can legally...get round this little difficulty by giving such coolies a month's notice and informing them at the same time that we are prepared to take them back as local recruits at a reduced wage."[49] The same meeting unanimously passed a resolution asking for "an alteration in the legislation governing the payment of prescribed standard rates of wages to Indian labourers in order that it may be made practicable to reduce rates of pay during the present period of depression."[50] In July, 1931, the Controller of Labour informed employers that action would not be taken against estates paying only three quarters of the minima for morning work. Also the authorities no longer insisted that employers offer a minimum of 24 days' work a month.[51] Thus "short-time" became another way in which employees' income was reduced. Kuczynski notes in regard to short-time that "this fact has always played an important role during times of crisis and depression" and thus there is in the real wage index as calculated for the 1930's an "artificiality"

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[49] Ibid., July 9, 1930, p. 12. The same idea was discussed favorably by the Penang Legislative Council. See the account in Malay Mail, July 8, 1930, p. 9.

[50] Ibid., July 9, 1930, p. 12. This was a recurring proposal as revealed in newspaper accounts. See, inter alia, the account of the Ulu Selangor District Planters' Association meeting in which the standard wages were described as having been "forced on the industry at the instigation of the Indian Government..." Malay Mail, July 11, 1930, p. 9.

[51] Bauer, op. cit., p. 226.

or incompleteness.[52] Again, in the absence of statistical data, corroboration can be sought in news accounts of the time. It was pointed out in regard to the May, 1930 "tapping holiday" that "many estates would find difficulty in providing regular extra work for tappers, more especially if that work was confined to their own tasks... In practice on estates they are usually employed on such work as weeding. If this is done by tappers little remains over for the other class of coolies."[53]

In regard to smaller properties, the Times reports that "owners who cannot afford to put their labourers on to other work will continue to tap, while others may give part-time work sufficient to maintain the coolies in food..."[54] There is no reason to believe that the measures being taken by the Asahan Rubber Estates were anomalous: "We have succeeded in lightening our wage burden materially..." Coolies "are doing part-time work on our estate in return for a wage payment appropriately less than we should have to pay them for a full day's work."[55]

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[52]See Kuczynski, Labour Conditions in Western Europe, op. cit., Chapter 1, and New Fashions in Wage Theory (London: Lawrence and Wishart, Ltd., 1937) Chapter IV and A Short History of Labour Conditions, British Empire, 1800 to the Present Day, op. cit., Chapter 1 for expansion of this important point.

[53]The statement was made at the annual meeting of the Johore Planter's Association as reported in The Straits Times, May 13, 1930, p. 8.

[54]The Straits Times, May 1, 1930, p. no. blurred.

[55]The Straits Times, January 11, 1933, p. 9. Reported at the 20th Ordinary General Meeting. Another way in which "short-time" came about was as a result of strikes over the question of wages. A Straits Times, April 2, 1937, p. 13 news account of "wages disputes" and the "great rubber estates strikes" states that "today thousands of Chinese tappers who had been idle for 17 days went back to their familiar tasks on the estates--the majority of them hungry and out of funds." Nor was the phenomenon of short-time confined to estate workers. In January, 1930, the Selangor Miners Association, with urging from the Tin Producers' Association, "passed a resolution agreeing to shorten daily working hours on Chinese mines, as from February 1, to an extent equivalent to the time lost on dredging and other mines on which the T.P.A. proposals have been adopted. ...54 dredges were not working on Sundays and about 50 gravel pump mines had closed down entirely in Perak", The Straits Times, January 14, 1930, p. 13.

A factor which had much the same impact as short-time in reducing family income was the reduced amount of work available for dependents. The problem was especially acute for the Indian community. "The question of finding employment for the numerous dependents of the Indian labourer has been a serious problem on many estates for a long time past and many estates who could easily have had an entirely Indian labour force have found it necessary to replace large numbers of Indian tappers with Chinese owing to the difficulty referred to together with the medical and other expenses which are so much greater in the case of Indian labour."[56] The Controller of Labour is explicit on the hardship this invoked. He stated in 1931 that "the rates of wages now in force for male labourers, though adequate for single men, are not so for married men whose dependents are unemployed."[57] By late 1933 employment for dependents had become more readily available.[58]

One important factor which worked in the opposite direction of short-time, paying less than standard wages and the other factors enumerated thus far was an increase of income in kind. Such an adaptation to the Depression was earlier discussed with reference to census figures. Though precise quantification is not possible, it would appear that this was an important augmentation of income. On the Asahan Rubber Estate, as earlier mentioned, labourers were put on part-time at reduced wages. At the same time, labourers were given the "use of some of our reserve

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[56] Malay Mail, July 11, 1930, p. 9.

[57] Reported in Bauer, op. cit., p. 228.

[58] Ibid., pp. 231-232.

land for allotments. On these they are raising crops of foodstuffs..."[59] Bila Rubber Lands, Ltd. reported at its general meeting that "we have now a large proportion of our coolie force settled on allotments, on land which we have placed at their disposal, on which they are cultivating food supplies for their own consumption, and they are working for us on a part-time arrangement."[60]

The preceding discussion shows then, as stated by Kuczynski, that "an index of wages, though a very important indicator of the trend of labour conditions, gives by no means sufficient proof of the trend of labour conditions."[61] Kuczynski suggests that a distinction be made between real wages and the broader concept of "labour conditions." "...the effect of increasing real wages upon general labour conditions can very well be offset by other factors influencing labour conditions in the opposite direction."[62]

Another plausible measure of welfare in the 1930's is per capita rice availability. Rice was, of course, a staple in the diet of all of Malaya's communities in the 1930-40 period. Significantly, it appears that one of the most beneficial results of the post-Tempany

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[59] The Straits Times, January 11, 1933, p. 9.

[60] The Straits Times, February 25, 1933, p. 9. Many other such reports could be cited. Another factor, of less importance than income in kind, were cost of living allowances begun in 1939 with the outbreak of war. See The Straits Times, December 1, 1939, p. 10.

[61] Kuczynski, Labour Conditions in Western Europe, op. cit., p. 36.

[62] Ibid. Kuczynski mentions additional factors beyond the scope of this study, such as work intensity, housing conditions and health. See pp. 38-54. Data are available on these topics. See inter alia, the Straits Times, February 25, 1933, p. 9. "Annual Review of Rubber" in which it is stated that "Production has been maintained at its present level by harder work and various expedients which could not be continued if the remaining labour were more in demand." Also, see the report of the Honorable Mr. V.S. Srinivasa Sastri to the Government of India in which it is recommended that cottages replace coolie lines. Reported in The Straits Times, February 27, 1937, p. 12. Further comment on Kuczynski's notions will be reserved for Chapter XI.

agricultural policy and the agricultural involution of the 1930's was that rice availability was well-maintained during the Depression. This point may be expanded by turning to data on rice availability and estimated intercensal population.

Population figures for 1921 and 1931 are provided in the Census Reports. Based on these figures, the table on page 306 estimates population for the intercensal years on the assumption of population growth rates of plus one, two and three percent growth rates in the nineteen twenties and minus one, plus one, two and three percent growth rates after the 1931 census:

POPULATION

	if -.01Δ	if +.01Δ	if +.02Δ	if +.03Δ
Population at the 1921 Census:		3,358,054		
1922		3,391,635	3,425,215	3,458,796
1923		3,425,551	3,493,719	3,562,559
1924		3,459,807	8,563,593	3,669,436
1925		3,494,405	3,634,865	3,779,519
1926		3,529,349	3,707,562	3,892,905
1927		3,564,642	3,781,713	4,009,692
1928		3,600,288	3,857,348	4,129,983
1929		3,636,291	3,934,495	4,253,882
1930		3,672,654	4,013,185	4,381,498
Population at the 1931 Census:			4,385,346*	
1931		3,709,381	4,093,449	4,512,943
1932	4,314,763	4,429,199	4,473,053	4,516,906
1933	4,271,615	4,473,491	4,562,514	4,652,414
1934	4,228,899	4,518,226	4,653,764	4,791,986
1935	4,186,610	4,563,408	4,746,840	4,935,746
1936	4,144,744	4,609,042	4,841,777	5,083,818
1937	4,103,296	4,655,132	4,938,613	5,236,333
1938	4,062,263	4,701,683	5,037,385	5,393,423
1939	4,021,640	4,748,700	5,138,133	5,555,226
1940	3,981,424	4,796,187	5,240,895	5,721,883

*Population estimates after 1931 are based on the 1931 Census figure.

The table on page 308 shows rice availability in Malaya for the years 1921 through 1940. The availability column on the extreme left is obtained by adding production and net imports. The column to the right of the availability column converts availability expressed in tons to pounds.[63] The remaining columns show pounds of rice available per person given the assumed population growth rates.

The data show that approximately the first seven years of the 1920's saw modest, but fairly steady increases in per capita rice availability on all three assumptions regarding population growth. In the late twenties, the modest gains continue only if one assumes population growth of one percent. It is not likely to have been this low. An assumption of two percent means static per capita availability in the late twenties and the assumption of three percent means modest declines occurred. Comparing the 1921 and 1931 census figures it appears that a three percent growth rate or just slightly higher is the most reasonable assumption. Had it not been for large imports of rice, much more sizeable decreases in per capita availability would have occurred given that population growth rate. This is confirmed by the data on page 309 on production and net imports of rice (which were earlier added together to arrive at the figure on availability).[64]

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[63] 1 ton = 2,240 pounds. As noted in the 1940 Malayan Agricultural Statistics (Kuala Lumpur: Registrar General of Statistics), p. iv, "Throughout these statistics the term ton stands for the long ton of 2,240 lbs."

[64] Malayan Agricultural Statistics, 1939, op. cit., Table 31. An interesting question deserving further investigation is whether maintenance of high per capita rice availability also meant high per capita consumption for all of Malaya's communities. Though the present study does not attempt to investigate this question in detail, it does at least suggest that those in the subsistence sector, the Malays, were the most successful in maintaining their rice consumption during the Depression.

	RICE AVAILABILITY		RICE AVAILABILITY/POPULATION			
	Tons (000's)	Pounds (000's)	if -.01Δ	if .01Δ	if .02Δ	if .03Δ
1921	502	1,124,480		334.86*		
1922	575	1,288,000		379.76	376.03	372.38
1923	597	1,337,280		390.38	382.77	375.37
1924	618	1,384,320		400.11	388.46	377.26
1925	642	1,438,080		411.54	395.64	380.49
1926	660	1,478,400		418.89	398.75	379.77
1927	737	1,650,880		463.13	436.54	411.72
1928	727	1,628,480		452.32	422.18	394.31
1929	742	1,662,080		457.08	422.44	390.72
1930	752	1,684,480		458.65	419.74	384.45
1931	780	1,747,200		398.42*		
1932	705	1,579,200	366.00	356.54	353.05	349.62
1933	733	1,641,920	384.38	367.03	359.87	352.92
1934	790	1,769,600	418.45	391.66	380.25	369.28
1935	806	1,805,440	431.24	395.63	380.35	365.79
1936	876	1,962,240	473.43	425.74	405.27	385.98
1937	892	1,998,080	486.95	429.22	404.58	381.58
1938	911	2,040,640	502.34	434.02	405.10	378.36
1939	1000	2,240,000	556.99	471.71	435.96	403.22
1940	970	2,172,800	545.73	453.03	414.59	379.74

*Rice Availability/Census figure

Season	Production tons (000)	Net Imports tons (000)
1920	162	336
1921	268	234
1922	211	364
1923	235	362
1924	224	394
1925	239	403
1926	185	475
1927	191	546
1928	203	524
1929	190	552
1930	160	592

The growing reliance in the 1920's on imported rice would seem to indicate that the new directions in agricultural policy that followed the reorganization of the Department and the appointment of Dr. H.A. Tempany as director were indeed called for. After the Reorganization and the proclaimed new policy of self-sufficiency in rice, the situation described above was reversed.[65] This is shown by the following data:[66]

Season	Production tons (000)	Net Imports tons (000)
1930	160	592
1931	264	516
1932	296	409
1933	300	433
1934	337	453
1935	331	475
1936	342	534
1937	319	573
1938	299	612
1939	341	659

[65]The events surrounding and the many aspects of this new policy are described in Chapter IX.

[66]Malayan Agricultural Statistics, 1939, loc. cit.

In particular the early 1930's saw marked improvement in rice production at a time when imports were falling or rising only slightly. Some of the increase in production was fortuitous. For example, the 1933 Colonial Office Report says, in regard to the 1933 rice crop, that "the favourable weather conditions experienced throughout all the chief padi areas were in the main responsible for the high yields obtained."[67] But, more significantly, the increase in rice crop in the 1930's was due to expansion of planted area which was part of the government's policy and to related efforts in the introduction of higher yield strains, in land policy and in irrigation.[68]

In consequence of these policies, it seems likely that per capita rice availability was well maintained throughout the 1930's. To support such a contention, it is again necessary to turn to estimation of intercensal population. There was not a census taken in 1941 because of the War. There were, however, "unofficial" censuses taken of all the states except Selangor, Trengganu and Malacca in the 1943-45 period of Japanese occupation. To arrive at an estimate of population for these three states it has been assumed that the ratio of Malacca's population to that of Penang and Province Wellesley of Selangor's to Perak and of Trengganu's to Kelantan was of the same magnitude in the early forties as in the official 1947 Census.[69]

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[67] Colonial Office Report, 1933, op. cit., p. 32.

[68] The average yield per acre in 1931, '32 and '33 was 260 gantangs as compared with an average yield of 207 gantangs for the preceding nine years. Ibid.

[69] The ratios as calculated from the 1947 Census are respectively 53.63%, 74.51% and 50.38%. As the states chosen are thought to be the most comparable economically, the population changes could be expected to be of like magnitude.

Multiplying the three ratios times the 1943-45 census figures of the comparable states it is estimated that Malacca's population was 221,603, Selangor's was 689,218 and Trengganu's was 203,082 in the early 1940's. Adding these figures to 4,460,307--the unofficially reported population of all the other states--gives a figure of 5,574,210. If indeed the population of Malaya was 5,574,210 in the 1943-45 period, the estimated 1940 population of 5,240,895 yielded by the assumption of a 2% growth rate in the 1930's sounds plausible. Considering the immigration patterns earlier mentioned (though the data are quite likely incomplete), there was probably considerable variation in year to year population change over the decade. Given the various benchmarks, annual population changes of approximately minus 1% for 1929-33, plus 2% to 3% for 1934-37 and approximately plus 2% for for 1938-40 seems plausible. These figures suggest that per capita rice availability was well-maintained. What Clifford Geertz has called the "concentrative, inflatable quality of sawah, its labour-absorbing capacity" was in the situation of the 1930's a boon for Malaya.[70]

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[70]Clifford Geertz, Agricultural Involution (Berkeley: University of California Press, 1963). Chapter XI will comment further on changes in the agricultural sector.

APPENDIX

Cost of Living Index

1928	Index	Weight	Index X Weight
Rice	88.24	80	7059.20
Cotton	86.20	12	1034.40
Meat	105.33	6	631.98
Tea	112.37	2	224.74
		100	8950.32

$$\text{INDEX} = \frac{8950.32}{100} = 89.50$$

1929			
Rice	90.51	80	7240.80
Cotton	86.20	12	1034.40
Meat	106.89	6	641.34
Tea	98.71	2	197.42
		100	9113.96

$$\text{INDEX} = \frac{9113.96}{100} = 91.14$$

1930			
Rice	79.04	80	6323.20
Cotton	62.10	12	745.20
Meat	109.73	6	658.38
Tea	84.79	2	169.58
		100	7896.36

$$\text{INDEX} = \frac{7896.36}{100} = 78.96$$

1931			
Rice	52.97	80	4237.60
Cotton	44.80	12	537.60
Meat	92.90	6	557.40
Tea	62.63	2	125.26
		100	5457.86

$$\text{INDEX} = \frac{5457.86}{100} = 54.58$$

1932			
Rice	52.83	80	4226.40
Cotton	41.40	12	496.80
Meat	79.66	6	477.96
Tea	59.02	2	118.04
		100	5319.20

$$\text{INDEX} = \frac{5319.20}{100} = 53.19$$

1933

Rice	43.06	80	3444.80
Cotton	44.80	12	537.60
Meat	72.52	6	435.12
Tea	68.04	2	136.08
		100	4553.60

$$\text{INDEX} = \frac{4553.60}{100} = 45.54$$

1934

Rice	39.09	80	3127.20
Cotton	41.40	12	496.80
Meat	75.28	6	451.68
Tea	72.16	2	144.32
		100	4220.0

$$\text{INDEX} = \frac{4220.0}{100} = 42.20$$

1935

Rice	50.99	80	4079.20
Cotton	44.80	12	537.60
Meat	78.96	6	473.76
Tea	77.84	2	155.68
		100	5246.24

$$\text{INDEX} = \frac{5246.24}{100} = 52.46$$

1936

Rice	48.73	80	3898.40
Cotton	41.40	12	496.80
Meat	74.59	6	447.54
Tea	60.05	2	120.10
		100	4962.84

$$\text{INDEX} = \frac{4962.84}{100} = 49.63$$

1937

Rice	53.12	80	4249.60
Cotton	55.20	12	662.40
Meat	78.71	6	472.26
Tea	58.76	2	117.52
		100	5501.78

$$\text{INDEX} = \frac{5501.78}{100} = 55.02$$

1938

Rice	52.97	80	4237.60
Cotton	58.60	12	703.20
Meat	88.58	6	531.48
Tea	57.99	2	115.98
		100	5588.26

$$\text{INDEX} = \frac{5588.26}{100} = 55.88$$

NUMBER AND TYPE OF COMPLAINTS REGISTERED WITH LABOUR DEPARTMENT,[71] FEDERATED MALAY STATES, 1925-1933; MALAYA, 1934-1938

Year	Total Labour Force (all races)	Types of Complaints: No Pay or Late Payment	Assault by Manager or Asst. Manager	Assault by Clerk or Kangany	Refusal to Accept Notice	Wrongful Dismissal	Separation of Families	Domestic Disputes	Other	Total Complaints
1925	184,102	842	51	92	64	116	24		307	1,496
1926	246,760	774	60	113	89	136	104		417	1,693
1927	225,218	1,429	54	153	41	188	198		713	2,776
1928	223,044	1,960	52	165	50	246	216		771	3,460
1929	258,780	1,361	64	221	91	236	174		710	2,857
1930	213,936	1,202	44	135	40	242	142		656	2,461
1931	175,637	898	26	58	46	199	226		413	1,866
1932	154,738	649	25	45	24	96	229		292	1,360
1933	164,852	754	44	148	38	184	429		456	2,053
1934	362,037	1,766	35	227	159	335	735		1,411	4,668
1935	348,979	2,202	40	204	77	500	---	775	1,247	5,045
1936	386,317	2,102	48	200	70	429	---	783	1,134	4,766
1937	479,536	2,037	35	215	123	546	---	1,021	1,432	5,409
1938	398,067	2,099	53	153	75	635	---	1,022	1,459	5,496

[71] Federated Malay States, Labour Department, Annual Report, 1925-1933; Malaya, Labour Department, Annual Report, 1934-1938. Reproduced in Parmer, op. cit., p. 276.

Note: Total labour force figures include estates and some mines, 1925-1929; estates, mines and factories, 1930-1938.

Chapter XI

Conclusions

This study has assigned the creation of an export sector a central role in initiating the growth process. Malaya is an archetypal case of this type of development. The commodities developed as exports, tin and rubber, were those highly using of unskilled labour or of a particular natural resource. In Malaya's case, the labourers immigrated from China and India. The export production of Malaya did indeed follow the typical growth curve of export-oriented economies rising very sharply to begin with and tapering off afterwards. The impetus for growth came largely from developments in the West.[1]

In the analytical framework of this study, the characteristics of the production function and the role of infrastructure are assigned special importance. Regarding the former, a distinction is made between the developmental impact of a capital-intensive industry (such as tin Post-1912) and a labour-intensive industry such as rubber. To assess the developmental impact of the export industries, raw census data has been analyzed. Consideration of the development process on a disaggregative industry level has made it possible to construct a profile of the Malayan economy and to detail the sectoral changes in the 1920-40 period. With notable exceptions-- such as the railway-- the desirable employment and transformative repercussions spelled out in the analytical framework occurred to a very limited extent. Though enclaves of "social and

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[1] All of these points are covered extensively in earlier chapters.

economic dynamism" did exist, the growth of the money economy was largely confined to those strips of land along the transport axis. While the export industries grew rapidly, the indigenous economy remained largely unchanged. The transformative impact that might have followed the establishment of export industries was blunted. These are the main conclusions to be drawn from the censal data on occupations and employment. In short the dualistic pattern that emerged after the establishment of export industries became increasingly tenacious from the turn of the century to World War II. The explanation for this lies in the role of infrastructure and it is in this area that other significant conclusions have been reached.

In this study an important distinction has been made between material infrastructure and institutional infrastructure. Transport and irrigation systems, as developed in Malaya, may be cited as examples of material infrastructure. Here, infrastructural policy was very successful in helping to bring~~ing~~ about increases in output of goods and services though at the same time it contributed to the rigidity of the emerging dualistic pattern. Institutional infrastructure was in this study very broadly defined as constituting the framework within which economic entities setup and realize their plans. The term subsumes institutions in an economy as well as administrative and political structures thus making it possible to focus on the use of economic and political power by these entities. This contrasts to many studies that take agricultural institutions and arrangements as given and do not explicitly take into consideration the exercise of power by elements of the institutional infrastructure. Infrastructual policy, in the sense in which it is viewed in this study may be among the most important

factors promoting or inhibiting the growth of dualism. In Malaya's case, the institutional infrastructure assured the outcome of continuing dualism with its characteristic uneven development and the growth of enclaves quite apart from the indigenous economy.[2] A capitalistic sector, comprised of tin and rubber and built up with British and Chinese capital and labourers from India and China, coexisted with a non- or pre-capitalistic sector (subsistence agriculture).[3] The existence of separate communities-- Chinese, Indians and Malays-- and the tensions between the communities was to be an important determinant of policy in the agricultural sector. (The most important thing here was the Malay Reservations Enactment)

Regarding agriculture, one fact emerges clearly. Rubber smallholding offered Malaya a promising formula for rural development. Rubber was a crop especially well-adapted to the small producer of whatever race. Economies of scale are not important in rubber and the processes in rubber production are basically simple. By dispensing with the unnecessary hierarchical structure found on estates, the smallholders enjoyed lower costs. At the same time, it has been established, they enjoyed higher yields. The other advantages of rubber to smallholders were many. Rubber can be grown on slopes and therefore makes no demand on scarce resources of flat or well watered land required for rice.

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[2]The characteristics of dualism are spelled out fully in Chapter I. A slight paraphrase of Clifford Geertz, Agricultural Involution (Berkeley: University of California Press, 1968) seems appropriate here. The large rubber estates were essentially not part, save in a mere spatial or geographic sense, of the Malayan economy at all but of the British.

[3]This is very close to Boeke's definition of dualism. See J.H. Boeke, Economies and Economic Policy of Dual Societies as exemplified by Indonesia (New York: Institute of Pacific Relations, 1953) for additional details.

Rubber utilizes surplus farm labour-- especially at slack periods in the rice-producing cycle. Rubber and kampong cultivation existed in a congenial mutualistic relationship.[4] Smallholders' supply of rubber was more elastic than that of the estates as the smallholders always had the option of shifting to alternative sources of earnings. The smallholders demonstrated their ability to respond in a rational way as economic criteria changed "during the great slump of 1930-32....when the market for rubber disappeared almost overnight. Had the smallholders been really dépaysé widespread starvation would have resulted."[5] The smallholder could devote himself to the production of rubber, rice, tapioca, sweet potatoes, fruit trees or other crops as price, cost and income considerations suggested. A further advantage of rubber is that it is non-seasonal and brings in cash returns immediately-- often less that a week after tapping is undertaken.[6] A prime cause of the indebtedness of the padi farmer was the need to maintain the cultivator and his family until the harvest. This factor plus the various items of

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[4]This was possible because of the production function of rubber. Geertz', op. cit., observation regarding the systemic characteristics of Indonesian agriculture-- the symbiotic relationship of swidden tobacco and swidden rice-- would seem applicable, mutatis mutandis, to rubber and wet-rice cultivation in Malaya.

[5]P.T. Bauer, Report on a Visit to the Rubber Growing Smallholdings of Malaya (London: H.M.S.O., 1948), p. 84.

[6]P.T. Bauer, "Some Aspects of the Malayan Rubber Slump," Economica (London: The London School of Economics, Vol XI, No. 44, November, 1944) p. 197. Bauer notes that even during the spring of 1932, rubber was always easily saleable with the "ubiquitous Chinese dealers . . . sufficiently numerous in all rubber-growing districts to ensure a fairly lively competition among buyers. This was by no means generally true for padi . . . ". It should be recalled that tapping could not begin until about six years after the trees were planted.

expenditure in rice cultivation such as the purchase of manures, of a plough or of a draft animal were all likely to send the smallholder to the moneylender-- cum-- shopkeeper. Such necessity to go into debt did not arise in the case of rubber because of the continuous returns throughout the year. Furthermore rubber involved both fewer risks and less hard work than rice. Whereas the risks in rubber are negligible, the considerable risks of padi cultivation were often stressed to Bauer in his visits to the rubber-growing smallholders of Malaya. The considerable risks involved concerned both the weather and rats. "A Javanese smallholder . . . who also cultivated padi at Tanjong Karang (Kuala Selangor) stated that last year the fruits of five months' work on his padi field had been almost wholly destroyed by rats in one night."[7] Regarding the advantage of less work, padi growing involved toiling in the mud of a wet padi field, sometimes for days on end. Tuan Haji Mohamed Eusoff, Senior Malay Cooperative Officer, describes "life in a bendang" as "a dreary and monotonous existence deprived of the elementary amenities of life which urban people take as a matter of course."[8] In contrast "rubber tapping is generally believed to be the least exacting form of work in tropical agriculture-- the rubber growing Malay native never had to work more than three or four hours a day, and could take off a day or even a week whenever he felt like it."[9] Additionally rubber

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[7]Bauer, Report on a Visit to the Rubber Growing Smallholdings of Malaya, op. cit., p. 19.

[8]The Straits Times, December 15, 1939, p. 7. This was, of course, offset by factors such as job security and independence as discussed in Chapter VI.

[9]Bauer, "Some Aspects of the Malayan Rubber Slump," Economica, op. cit., p. 197.

growing was looked upon as a means of social betterment and as such would have generally conduced to rural stability.

In spite of the above facts, the "ample evidence" of "peasants' responsiveness to price incentives" and the fact that "smallholder rubber was an instance where the propensity to innovate was demonstratively present in a broad-based social group", rubber restriction in the twenties and thirties still heavily favored the estates.[10] "Rather than capitalize on the potentials of rubber smallholding for rural development, colonial policy deliberately stifled peasant innovation in pursuit of its custodial goals."[11] Effectively the restriction provisions obliged smallholders to forego incremental income. Restrictions were placed on peasants' maximizing behaviour or as Silcock succinctly states it, the government's "policy can not be adequately explained in terms of attempting to maximize anything...smallholders' interests were considered in terms of maintaining a stable way of life and secure food supply."[12] The estates employed their power to control both institutions and policies so that--to the extent possible-- inefficient producers could be protected and a profitable status quo maintained.[13] An "ideal" alternative policy for Malaya in the 1920-40 period might have capitalized on smallholder potential with a vigorous policy of new planting, with large scale

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[10]The quotes are respectively from Robert Mabro, "Employment and Wages in Dual Agriculture", Oxford Economic Papers (New Series), Vol. 23, Number 3, November, 1971, pp. 401-417, and Martin Rudner, "The State and Peasant Innovation in Rural Development: The Case of Malaysian Rubber," Asian and African Studies, Vol. 6, 1970.

[11]Rudner, op. cit., p. 79.

[12]T.H. Silcock, The Economy of Malaya (London: Institute of Commonwealth Studies, 1961), Reprint Series No. 15, pp. 336-337.

[13]This point is, of course, greatly expanded in Chapter VII.

distribution of high yielding planting material, liberal alienation of land on easy terms for new planting and in general encouragement of low cost producers.[14] Instead the duality within the agricultural sector of smallholders and estates, with the higher cost sector enjoying the larger share, was perpetuated. To use Higgins' terminology, Malaya failed to seize the "optimal moment" for a "big push". The contribution of this study has been to bring together the numerous excellent studies on the rubber industry and to focus on institutions and governmental policies in explanation of the continuing dualism within agriculture and within the larger economy. The value of intensively studying an economy such as Malaya derives from the fact that many of the phenomena of dualism are best understood by focusing on the institutional sector of infrastructure and its national peculiarities. Other important conclusions are also to be drawn in the agricultural sector and we now turn to these.

The 1930's saw a new thrust in agricultural policy (as earlier described) and this resulted in significant increases in the output of rice. Thus, at least in part, developments in agriculture demonstrate the success of governmental policy. This especially seems to be the case regarding irrigation. At the same time it can be argued that the goal of self-sufficiency in rice and foodstuffs was never really attainable

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[14] In fact there remained in the 1940's millions of unplanted acres of land suitable for rubber cultivation in western Malaya. This is reported by Bauer, Report on a Visit..., op. cit., p. 18. This is not surprising as "there was very little alienation of land for rubber planting in Malaya over the last quarter of a century, especially for new planting by smallholders...", p. 14.

and that the adaptation taking place in agriculture was an inevitable one given the evolution of Malayan dualism to that point. In the 1930's kampong cultivation and rice existed mutualistically and quite autonomous of the export sector so severely affected by the Depression. With the onset of Depression those in the subsistence sector, in contrast to the proletarianized labour force in the export sector, were left with a single choice. They were in Geertz' terms "forced into a labour-stuffed pattern."[15] Such an adaptation may be viewed as a sort of "share the poverty scheme" and it was probably viewed by the peasant as simply a way of "getting on" in difficult times. The kampong-sawah combination, described by Sir Cecil Clementi in 1932 as the "ideal homestead" provided the ideal milieu for such an adaptation. Thus though rice production could be increased sufficiently to well-maintain per capita consumption through the 1930's, it would seem to have been foreordained that Malaya would fall short of the proclaimed goal of self-sufficiency in rice and other foodstuffs. The government's effort to force the cultivation of padi was working against formidable economic factors. Bauer's excellent study provides figures showing that the average smallholder of Western or Southern Malaya could in fact obtain more rice by producing rubber, selling it and buying rice with the proceeds than by growing rice. (This is shown in the tables on pages 325 and 326.) Still further explanation of why self-sufficiency was an unattainable goal is to be found in analyzing other important factors.

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[15]Geertz, op. cit., p. 80. The writer concedes that population pressure was not so severe in Malaya as in Java about which Geertz was writing.

Table X[16]

	(1) Average yield of small-holders' rubber: lb./per mature acre	(2) Singapore price of ribbed smoked sheets: cents/lb.	(3) Assumed average price received by small-holders: cents/lb.	(4) Estimated gross proceeds/acre: dollars:	(5) Assumed Expenses per acre: dollars:	(6) Estimated net proceeds per acre: dollars:
1929	485	34.5	30.5	150	6	144
1930	460	19.3	16.8	77	6	71
1931	445	10.0	8.0	36	3	33
1932	385	7.0	6.0	23	3	20
1933	465	10.2	8.7	40	3	37

	(7) Average retail price of No. 1 Rangoon rice in Malacca: cents/gantang (1 gantang rice = 8 lb.)	(8) Gantangs rice obtainable with proceeds of rubber: (6--7)	(9) Average yield of cleaned rice: gantangs per acre:	(10) Deduct rice equivalent of expenses: gantangs:	(11) Net yield of rice: (9-10)	(12) Balance in favour of rubber: in gantangs of rice: (8-11)
1929	52	277	83	30	53	224
1930	46	154	73	30	43	111
1931	28	118	101	30	71	47
1932	22	91	110	30	80	11
1933	23	160	106	30	76	84

[16]P.T. Bauer, "Some Aspects of the Malayan Rubber Slump," op. cit., p. 196. As the sources, assumptions and calculations underlying this data are very important, Bauer's appendix explaining these matters is reproduced at the end of this chapter.

Table XI

	(1) Average yield of padi per acre: gantangs:	(2) Price per panier: cents:	(3) Gross Proceeds from Padi: dollars per acre:	(4) Cash equivalent of cost padi production: dollars:	(5) Assumed net proceeds from padi: dollars	(6) Estimated net proceeds of rubber as Table X Col. 6	(7) Difference in favour of rubber: dollars:
1929	202	14	28	14	14	144	130
1930	180	13	23	13	10	71	61
1931	248	8	20	7	13	33	20
1932	272	7.5	20	6	14	20	6
1933	260	6.7	17	6	11	37	26

British colonial policy in this period involved a sustained effort to maintain the Malay population in their traditional way of life.[17] The theoretical basis for this policy is elucidated in the following quote:

> "The British, in their duty as trusteeship for the Malay people demand that we administer the country on lines consistent with their welfare and happiness, not only for today but for the future ages. That end will be attained rather by building up a sturdy and thrifty peasantry living on the lands they own and living by the food they grow than by causing them to foresake the life of their fathers for the glamour of new ways . . . to abandon their rice fields for new crops which they cannot themselves utilize and the market for which depends on outside world conditions beyond their orbit."[18]

In keeping with this policy of making rice-growing a Malay preserve, applications by non-Malays for tracts of land suitable for rice cultivation were consistently denied. Fear that the Chinese would make rice-growing a commercial concern and thus deprive the Malays of their traditional livelihood was definitely operative. The policy of excluding other than Malays from rice cultivation was reaffirmed by the Rice Cultivation Committee.[19] The lone dissenter on the Rice Cultivation Committee was a Mr. Tan Cheng Lock who argued that it was unfair to make all possible padi lands reservations for the Malays. He urged that Indians and Chinese, "many of whom will be compelled in course

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[17] An earlier map showed the large areas of the country set aside as Malay reservations. See Chapter VI.

[18] Ding Eing Tan Soo Hai, The Rice Industry in Malaya 1920-1940 (Singapore: Malaya Publishing House, Ltd., 1963), p. 15 citing A.S. Haynes, "Extension of Rice Cultivation in the F.M.S.: Need for a Definite Policy," Proceedings, F.M.S., 1933, p. C293.

[19] The Committee notes, it would seem approvingly, that "rice cultivators of races other than Malays are conspicuous by their absence." Report of the Rice Cultivation Committee, F.M.S. (Kuala Lumpur: F.M.S. Government Press, 1931) Vol. I & II, p. 17.

of time to take agricultural pursuits as a means of livelihood" be permitted and encouraged to acquire land outside Malay Reservations for the purpose of rice planting.[20] In spite of this and the urgings of the unofficial members of the Legislative Councils of both the Straits Settlements and the Federated Malay States, the exclusory policy continued almost until the outbreak of World War II.[21] The fact is that the Malays by themselves were simply not able to grow sufficient rice to feed themselves, the Chinese and the Indian Communities. It was, of course, the immigration of thousands of Chinese and Indians in connection with the growth of the export industries that caused Malaya's rapid population growth. Population rose from 3,358,000 in 1921 to 5,511,000 in 1941 or an increase of 64%. Rice production rose insufficiently to keep pace.[22]

Other factors were contributory to the "failure" of governmental policies in agriculture. The ill-conceived policy of making rice a Malay preserve was helped along by the atavistic attraction that land seemed to hold for Malays-- giving rise to further immobility in the agricultural sector and thus intensifying dualism. This is confirmed by Robert Ho's study of the evolution of agriculture and land ownership in Saiong Mukim which illustrates the importance of sociological and cultural factors in the rural Malay's attachment to the land. "Static change" in land ownership was defined by Ho as a transaction which

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[20] Ibid., p. 48.

[21] It must be conceded that in normal times, the Chinese and Indians weren't particularly attracted to rice; however, with the unemployment caused by the restriction schemes in rubber and the Depression, many would have likely gone into rice.

[22] Extensive figures on rice production are provided in Chapter IX.

involved no change in the number of owners. Thus static change would occur when a single owner sold to another individual or when a brother and sister inherited land formerly held by their father and mother. After 1900 the rate of static change rose sharply until such changes affected over half of all lots by 1930.[23] This "notably high" rate of static change, Ho suggests, is indicative of the prestige of owning land in Malaya. " . . . as most District Officers know, ownership of land confers status among Malays, many of whom will insist on obtaining and thereafter holding tenaciously onto, minute shares of land."[24] Racial antipathy and the distaste that some Malays felt for monetary dealings were further cultural factors intensifying the attraction the traditional cropland held for Malays. There was no doubt some feeling of ambivalence as Malays weighed the cash attraction of rubber against their dislike for becoming involved with the commercial Chinese-dominated sector.

Another serious problem in the agricultural sector was fragmentation. Fragmentation contributed to the problem of immobility of rural labor while also exacerbating other problems. In part the problem of fragmentation derives from Muslim laws regarding distribution of assets on death. In contrast to many Middle Eastern Muslim countries where the bulk of the property is in the form of camels or jewels, in Malaya in the period under consideration almost all the property at death

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[23]Robert Ho, "The Evolution of Agriculture and Land Ownership in Saiong Mukim," The Malayan Economic Review, Vol. XIII, No. 2, October, 1968, p. 91.

[24]Robert Ho, Farmers of Central Malaya (Canberra: The Australian National University, Department of Geography, G/4, 1967), p. 41.

was land. Muslim law provides a fractional share of the estate to each beneficiary depending on the degree of consanquinity and sex. A wife is entitled to a one-fourth share of her deceased husband's estate, or one-eighth if there are surviving children. The mother of a deceased farmer gets one-sixth of his estate, the residue being divided among his children in the ratio of one share per son and one-half share per daughter. With rare exceptions, no heir may be disinherited.[25] In addition to fragmentation attributable to the operation of inheritance laws, fragmentation by sale (i.e., more co-owners buying than co-owners selling the same lot or share) was common in the 1920-40 period. Wilson's study of padi-land ownership in Krian confirms the rapid fragmentation attributed to the above causes. Most of the land titles taken out just after the turn of the century, the time of the Krian Irrigation Scheme, were taken out by one person as sole owner. Only six out of every 100 lots were taken out by co-owners and with no lot shared by more than two co-owners, there were on average 106 land owners or co-owners for every 100 lots. The average size of each owner's individual share was six and three-fourths acres. Wilson provides 1954 figures for comparison with the 1900 figures. Though 1954 is beyond the time span of this study, comparison of the figures will provide an indication of the pace of fragmentation which continued unabated throughout the 1920-40 period and indeed throughout the entire first half of the century. There was in 1954 an average of 238 owners or co-owners for every 100 lots. The average size of the share of each individual owner or co-owner had

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[25] Ibid., p. 40 and 46.

dropped to 2 1/2 acres.[26] Whereas in 1900, one owner in ten shared ownership of his lot, by 1954 four out of five were co-owners. In 1900, 54% of the shares were over five acres in size. In 1954, the comparable figure was nine percent. In 1900, two percent of the shares were less than two acres in size; in 1954, 53 percent were.[27] Thus in the many cases where the co-owners did not belong to the same family, or were not close friends, fragmentation made transfer of the land much more difficult and, in a sense, the Malays were "frozen" in their traditional pursuits. Further, as noted by Wilson, "absentee owners of small fractions e.g., 1/120 or 1/44 of a lot may abandon this land when padi prices are low, causing increased incidence of pests and diseases in nearby cultivated areas and they may make more difficult the selling of the whole lot with a clean title."[28] Ho's study of Saiong Mukim corroborates the findings of Wilson regarding fragmentation. Ho points out that fragmentation appears to have operated at consistent levels through the 1920-40 period-- indeed during the first half of the century. The number of lots lapsing into joint ownership increased at a rate averaging 10% of all lots per decade. He notes that "the process has gone furthest with lots devoted to traditional crops."[29]

Fragmentation in the 1920-40 period was carried to such an extent as to seriously compromise the operational efficiency and

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[26] T.B. Wilson, "Some Economic Aspects of Padi-Land Ownership in Krian," The Malayan Agricultural Journal (Kuala Lumpur: Department of Agriculture, Federation of Malaya), Vol. 37, No. 3, 1954, p. 127.

[27] Ibid., p. 128.

[28] Ibid.

[29] Robert Ho, "The Evolution of Agriculture and Land Ownership in Saiong Mukim," p. 91. See tables on pp. 92 and 93 providing details on the extent of fragmentation.

productivity of the land-- thus helping to doom government efforts to increase rice output. Ho offers the not atypical example of a 5.4 acre lot which was subdivided among 10 heirs, five of whom owned a 2.5 percent share or 0.13 acres each.[30] Whereas farmers were "perfectly willing" to concede the deleterious effect of such fragmentation on production, "They showed no sign of defining any minimum limit to the fragmentation process. The overwhelming majority claimed that they were governed by the Islamic law of inheritance, which by specifying the exact shares of heirs, progressively fragments properties as generations pass."[31] By 1940 more than half of all padi lots were held by two or more persons each. "At a 50 percent level of lots affected, the process of fragmentation began with medium and large sized lots in the 1911-20 decade; it then spread to those 2-3 acres in size in the next decade and the smallest lots by 1931-40."[32]

The most extreme case of fragmentation, of course, is Java where the process has gone so far as to afford the Javanese only the barest subsistence. One of the main conclusions in this study is that the adaptation of the Malays in the rural sector was not unlike the involutional adaptation described in Geertz' famous study.[33] That some sort of "share the poverty scheme" was concocted is strongly suggested by the fact that a large part of the expansion of joint ownership was accomplished through the entry of relatives of existing land owners. A share of 2 1/2 acres, Wilson notes, obviously does not permit full-time

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[30] Ibid., p. 95. Though this example was drawn from the 1950's, many could be found in the 1920's and 1930's.

[31] Ibid. The legal provisions of Islam relating to inheritance are explained in Ahmad Ibrahim, Islamic Law in Malaya, Singapore, 1965.

[32] Ibid., p. 96.

[33] Clifford Geertz, Agricultural Involution (Berkeley: University of California Press, 1968).

owner cultivation at tolerable standards of living.[34] Thus other types of tenure systems may have been informally devised. "The units in which padi land is owned may bear little relation to the units in which it is cultivated . . . Shares may be rented in or rented out."[35] The hypothesis that cooperation among related co-owners may have partially offset the harmful effects of fragmentation is one of the more interesting hypotheses to emerge from the present study and would certainly seem worthy of further investigation.[36]

Another serious problem in agriculture was indebtedness with perhaps the greatest problem being that where indebtedness led to loss of land the incentive to increase output was gone-- incremental output going in large part to the absentee owner.[37]

The 1948 Report of the Committee Appointed . . . to Consider Whether the Machinery for Agricultural Credit in Malaya is Adequate provides a description of the processes by which peasants got into debt.[38] The smallholder who depended mainly on his padi for his livelihood farmed a plot of several acres which he worked with the help of his family. The main factor of production was labor though buffaloes were

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[34]Wilson, op. cit., p. 134.

[35]Ibid.

[36]In this study, the researcher did not feel there was sufficient data to conclusively confirm or refute the hypothesis.

[37]Cheng Siok-Hwa, The Rice Industry of Burma, 1952-1940 (Singapore: University of Malaya Press, 1968). See Cheng for a closely analagous situation in Burma. The corrective measures taken in Burma were also much like those of Malaya.

[38]The full name of the Committee is: The Committee Appointed by His Excellency the Governor of the Malayan Union to Consider Whether the Machinery for Agricultural Credit in Malaya is Adequate, to Comment on Suggestions in the Report of the Colonial Economic Advisory Committee and to Consider Generally the Problem of Rural Indebtedness, December, 1948. See in particular pp. 419-421 from which the above description is taken.

used in some areas. "Extra expense may be required in the preparation of the land, in the purchase of fertilizer (in some areas), in the final transplanting and in the reaping of the harvest."[39] Where no credit was available, personal labour was given and received in conformance with the sort of involutional adaptation earlier suggested. Where credit was available, "the old mutual arrangement tends to disappear and the transaction becomes more akin to a formal contract for the engagement of labour."[40]

To maintain themselves while the crop was growing, padi farmers to whom credit was not available resorted to fishing or working on a nearby rubber or coconut estate or work for the Drainage and Irrigation Department. In fact, however, credit tended to be widely available in the form of padi kuncha or padi ratus as it was variously called. Under this form of credit, the source was the shopkeeper-- usually Chinese-- situated in the Kampong itself. Credit, both in kind and cash, was provided to the padi planter on condition that the planter sell to the lender at a price which was fixed at the time of the loan sufficient of his crop to settle the debt. As the Rice Cultivation Committee notes, "When repayment is made at the time of the harvest, the price they receive results in the producers being paid at a figure which is far below the true market value of the produce."[41] Still, from the planter's point of view this was a highly desirable form of credit-- being obtainable in cash or in kind and in his own kampong. Another form of indebtedness was

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[39] Ibid., p. C420.

[40] Ibid.

[41] Report of the Rice Cultivation Committee, op. cit., p. 40.

that of loans obtainable from Chettiar or Tamil money lenders for which the padi land was pledged as security.

The Rice Cultivation Committee Report notes that throughout the padi-growing regions, debt in the 1930's was widespread and universal, the percentage of indebtedness varying from about 40 percent to 90 percent of the padi-growing population in different areas."[42] The gravity of the indebtedness problem-- particularly during the Depression-- can hardly be overstated. "The smallholders, the peasantry, the cultivators who lived and had their homes upon the land were heavily indebted to moneylenders and in most cases their land was the security for these debts. That condition of affairs was not new but the acute depression now existing....had made this wholesale indebtedness a matter of grave concern... Indications were not wanting that these lands, these Malay holdings, might be sold on an extensive scale in order to recover debts."[43] The same news article reports that "the actual number of orders for sale of Perak smallholdings issued at the instance of chargees or decree holders during the first three quarters of 1930 was 347: this represented roughly an increase of 48 percent over the 1929 rate... Chetties were visiting the Kampongs with threats of wholesale confiscations... The smallholders", according to the Sultan, "were in terror of expropriation."[44]

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[42] Ibid.

[43] Malay Mail, January 20, 1931, p. 10.

[44] Malay Mail, January 20, 1931, p. 10. Also see The Straits Times article, December 23, 1930, p. 14 which speaks of the "real danger of a wave of foreclosure which might in its effect occasion a serious disturbance in the land settlement of the country."

With such indebtedness leading in many cases to the loss of land, the government made it illegal for non-Malays to lend on the security of a Malay's land.[45] These attempts to protect Malay smallholders still further rigidified the dualistic stereotype-- the pattern of inefficient Malay smallholders became even more tenacious. Ho states that "the Enactment may have depreciated the value of land held in Reservations, made technical innovations more difficult and slowed down the rate of agricultural improvement."[46] There were recurring suggestions that the principles of the Malay Reservations Enactment be extended to cover non-Reservation and non-Malay smallholdings. Though it is impossible to say conclusively, news accounts strongly suggest that such proposals had the effect of making credit more difficult to get. In the debate (before the Perak Federal Council) over allowing the sale of all smallholders' land only with the consent of the Ruler of the State in Council, opponents argued that such a law "will strike at the very root of one of the foundations of this country's credit." ". . . the particular apprehension of the money lenders regarding the Bill was that it would result in smallholders generally ceasing to pay any interest on their loans."[47]

Two additional ways in which the government attempted to deal with rural indebtedness were the establishment of government rice mills and the formation of cooperative societies. Government Rice Mills were

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[45]Wilson, op. cit., p. 134. Such provisions were included in the Malay Reservations Enactments.

[46]Ho, Farmers of Central Malaya, op. cit., p. 14. A later World Bank Study (1955) also stresses the fact that the Enactment's operational effect was to prevent Malays from obtaining credit except from Malay sources. See Ho's discussion, p. 13.

[47]Malay Mail, January 20, 1931, p. 10.

established at Bagan Serai and Kuala Kurau between 1917 and 1920. These government mills advanced money to cultivators in the early years but had to abandon the practice because of the difficulties of obtaining repayment. The Rice Cultivation Committee Report laments that "not infrequently, cultivators took advances both from the mill and from private individuals and, as the mill was not in a position to enter on the holdings of the cultivators and take possession of the crop when the time for repayment arrived, persons who had given private advances frequently took possession of the crop before the Government Mill could enforce its claim."[48]

The co-operative movement in Malaya began in 1921. " . . . at the outset it was hoped that it would find its chief application in relation to agriculture and that, of those who would benefit thereby, the padi planters would be the most important class."[49] Rural Malays accepted the Co-operative Societies as another source of credit, but borrowed from them "not so much for productive purposes as for religious and social expenditure."[50] Virtually no progress was made in the 1920's with the shortage of trained officers qualified to educate Malay farmers in co-operative principles being partially blamed for the failure. In the 1930's efforts were made to consolidate the movement, but this too made little impact on the problem of rural indebtedness. Many Malay

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[48] Report of the Rice Cultivation Committee, op. cit., p. 40.

[49] Ibid.

[50] Tan, op. cit., p. 31 citing A.R. Co-op, 1922, pp. 11, 13 in Sel. Sec. 1714/1923; Proceedings, F.M.S. 1923, p. B25: C.F. Strickland, Report on Co-operation in Malaya, in Proceedings, F.M.S., 1929, pp. C392-393.

farmers continued to become indebted to Chinese middlemen or shopkeepers seeming to prefer this direct dealing to the complications of the Co-operative with all its rules and regulations. Regarding its earlier expressed hopes as to whom the main beneficiaries of the co-operative movement would be, the Rice Cultivation Committee Report concedes that "these hopes have not been for the most part realized."[51] The most rapid growth of the movement took place in Thrift and Loan Societies amongst government employees and urban and estate workers. The Retrenchment Commission Report of 1932 relates that "Urban Thrift and Loan Societies have a membership of 12,000 with a paid-up capital of $2 1/2 millions. Agricultural Rural Credit Societies have a membership of 1,743 with a paid-up capital of $80,000."[52]

In general then it must be concluded that government policies were not successful in dealing with agricultural problems. Following the enervation of smallholder rubber through the restriction schemes, the governmental policy relegated Malays to Malay Reservations and subsistence agriculture while at the same time denying Chinese and Indians such pursuits. While additional problems (such as the atavistic attraction that the land held for Malays, fragmentation, indebtedness, etc.) that were either beyond government control or unresponsive to the

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[51] Report of the Rice Cultivation Committee, op. cit., p. 40.

[52] The Final Report of the Retrenchment Commission (Kuala Lumpur: Federated Malay States, Government Printing Office, 1932) p. 47. Still the Government adhered to the hope through the 1930's. As reported in The Straits Times, June 17, 1937, p. 17. "It is the aim of the S.S. and F.M.S., Friendly Societies Department eventually to establish a thrift and credit organization in every Kampong..."

government's attempts at solution were contributory, governmental policies perpetuated the pattern of segregative dualism and helped assure that the country would not achieve the goal of self-sufficiency in rice. Governmental policies regarding foodstuffs were only changed with the imminence of war in the late 1930's.

The attempt to assess welfare changes in the 1920-40 period is complicated by numerous factors. Reliable income data and intercensal population figures are not available and therefore per capita income could not be calculated. An index, calculated in the form of a weighted arithmetic mean including four important consumer items assigned "appropriate" weights, has been calculated in this study. This is a very helpful starting point in the investigation of welfare. The index reveals that prices fell by more than wages-- that is standard wages as set by the Indian Immigration Committee and herein expressed as an index. However, there are serious "limits to statistical expression" as Jurgen Kocyznski has stated. The index calculated in this study was based on the assumption of uniform prices throughout the country. As shown, however, prices do vary from one section of the country to another. Furthermore, the wage index pertains only to those employed on a full-time basis and who actually received the standard wage. It takes no account of fines, short-payment or non-payment of wages or of labourers who were paid less than the standard wage. In view of the fact that the indices could not take account of these factors, the index approach was supplemented by reliance on newspaper accounts of the 1930's. These reveal that fines, witholding of wages, short-payment and non-payment were indeed common occurrences. Though such practices are indeed pertinent to an investigation of welfare, they are not susceptible to precise quantification or inclusion in an index.

News accounts also reveal that many labourers were allowed to grow vegetables and other foodstuffs on plots provided by estates. Thus money income was augmented by income in kind. Again, without quantification, such income can not be included in an index.

An interesting hypothesis to emerge from the present research is that the effect of increasing real wages upon general labour conditions may be more than offset by factors influencing labour conditions in the opposite direction. Further research might well focus on the difficulties of devising an index or indices which would somehow take into account such factors as short-payments, non-payment, work intensity, health and other factors. The present research indicates the great difficulty of taking account of all pertinent factors in a single index.[53]

The present research suggests that welfare changes fell with differential impact on the three communities in Malaya's segregative dualism. Ironically the Malays, who were in a sense confined to the relatively stagnant subsistence sector in the early twentieth century period of rapid growth, probably were best able to maintain their welfare in the Depression decade. This, of course, was accomplished through the involutional adaptation that has been described. What Geertz has called the "inflatable quality" of rice and kampong cultivation made possible maintenance of the pre-Depression level of per capita rice consumption. In this, of course, governmental policies as earlier described, played a very important role. With rice imports declining

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[53]Kuczynski refers to the artificiality or incompleteness of a real wage index. See the discussion of this point in Chapter X and the references to Kuczynski's work.

in the early thirties, domestic production was expanded sufficiently to maintain per capita consumption even on the assumption of substantial population increase.[54] The index of rice consumption/population as calculated in this study indicates convincingly the efficacy of infrastructural policy, particularly in the matter of irrigation.

Some rather more general conclusions about the evolution of Malayan dualism may also be stated. At the nascence of the export industries, material infrastrucure was important in initiating growth. It continued to be important in promoting growth while also rigidifying the emerging pattern of dualism. But especially important in the perpetuation of dualism in the 1920-40 period is the role of institutional infrastructure. In the tin industry, there were economic reasons why control passed into European hands. British entrepreneurs brought in dredges in the period after 1912 and could thereby more efficiently mine tin. By contrast, gaining a dominant share in the rubber industries was achieved by restriction schemes which underassessed smallholders, the lower cost producers, and effectively made impossible new planting and replanting. The restriction schemes were controlled by powerful groups. These groups (such as the Rubber Growers' Association) and governmental policies-- all of which were subsumed under institutional infrastructure-- were most important in shaping Malayan dualism in the 1920's and '30's. An important consequence was that an indigenous group with a demonstrably present propensity for entrepreneurship was not allowed to fully seize the opportunities that rubber production afforded. The money economy expanded only to a limited extent. Growth was confined

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[54] See the index in Chapter X.

in a geographic sense-- largely to the areas along the transport axis. Growth, being largely confined to the export industries, only "touched" a part of the population and the autonomy of sectors was well-maintained.[55] In the 1920-40 period population continued to be concentrated in the West. The agglomeration of commercialization continued unabated as did the orientation of certain areas and sectors towards world markets. In short, dualism was perpetuated.

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[55]As earlier discussed, the autonomy of the subsistence sector may well have been a boon in the circumstances of the Depression.

APPENDIX

The following notes summarise the sources of the data for Tables X and XI, (from Bauer's The Rubber Industry).

The spread between the Singapore price and that received by the Malayan smallholder for the bulk of his rubber was generally narrow, especially at times of low prices. The margin may be taken as 4 cents for 1929 (a year of comparatively good prices). 2 1/2 cents for 1930, 2 cents for 1931, 1 cent for 1932 and 1 1/2 cents for 1933. No accuracy is claimed for these figures, but they show the general order of magnitude; they are in accordance with the observations of the late Dr. Whitford in his various "Reports on Plantation Rubber" and are also in rough agreement with the price published in the market reports of the Malayan Department of Agriculture. With the latter, the comparison is not easy as in the market reports a range of prices used to be set against a Singapore average. The figure of one cent as the average margin for 1932 was also confirmed by some remarks of an Unofficial Member in the F.M.S. Federal Council in the Autumn of 1933. The keen buying competition of European and Chinese dealers and the proximity of the most important native rubber growing districts to the larger towns explains the remarkable low margins. The bulk of Malay native rubber was well prepared and generally good quality. In Singapore Chinese Smoked Sheet (Malayan smallholders' rubber smoked by Chinese dealer) fetched much the same price as standard quality ribbed smoked sheet.

The price of padi for 1929, 1932 and 1933 is the average price paid for Malayan padi by the Government mill at Bagan Serai in Perak. The corresponding figures for 1930 and 1931 could not be traced but it is reasonable to assume that the proportionate change in the average price from 1929 to 1930 and 1931 was roughly of the same order as the changes

in the unit value of padi in the trade returns: this was true for 1929 and 1932 and 1933. The 1930 and 1931 price has been calculated on that assumption. The price paid by the Government mill was almost certainly higher than the average price obtainable for Malayan padi in the interior and to this extent the comparison is weighted in favour of padi.

Thr retail price of rice in Malacca was taken from the official annual "Malaya Average Prices": for inland centers like Kuala Lumpur only occasional figures were available which were not greatly different from the prices in Malacca. The average yield of padi and rice can be calculated from the official estimates of output and acreage. For 1929 and 1930 the official estimate of rice yields has been raised by ten percent as subsequent information revealed that the official figures under-estimated the yields in those years.

Expenditure on production is a more difficult matter, especially as most items of the cost of rice production were paid for in kind and often varied with the yield. The figure of 30 gantangs (240 lbs.) of cleaned rice per acre as the rice equivalent of the cost of production is certain to be conservative and below the general average. It is substantially below the estimate of the Malayan Rice Cultivation Committee of 1930. The figure has been adopted after correspondence with Dr. H.A. Tempany, Agricultural Adviser to the Secretary of State for Colonies, who was Director of Agriculture to Malaya throughout the slump. In comparing rubber and padi as cash crops it was necessary to express in cash the costs of padi production. The figure of 30 gantangs was multiplied by the Malacca price of rice (Col. 7 of Table X) and one dollar deducted to allow for the absence of milling when the crop is sold as padi. The conversion of the expenses in kind into cash costs at a retail price undoubtedly inflates the figure: on the other hand 30 gantangs is more likely to be

a minimum rather than an average while the estimated price of padi is also generous so that the net figure is unlikely to be seriously affected.

The expenses of rice production whether in cash or kind were appreciably higherthan the cost of rubber growing on small holdings as rubber requires no plough, draught animal, manures or seeds. In 1932 the Kuala Lumpur correspondent of the Straits Times put the all-in cost of smallholders' rubber in Selangor at 1/2 cent per lb. It was not clear from the context whether or not this included rent. The majority of smallholders paid rent at one dollar an acre when growing rubber: rice land was generally rent free except for irrigation charges and the like. To be on the safe side it has been assumed that the cash cost production was 1/2 cent per lb. in 1931-33 excluding rent. For 1929-30 one cent per lb. (again excluding rent) has been taken to allow for the higher cost of coagulants and tools in those years. Once again the figures are broadly in accordance with Dr. Whitford's estimates for the years in question. Both in the cost of production and in the proceeds assumed allowance has been made in a rough way for the fact that most of the output was sold in the form of unsmoked sheet. [56]

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[56] P.T. Bauer, "Some Aspects of the Malayan Rubber Slump," op. cit., p. 198.

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